

An aerial photograph of a rugged, mountainous landscape. The foreground and middle ground show rolling green hills with some brown, eroded sections. A coastline is visible on the left, with a sandy beach and turquoise water. The background consists of dark, forested mountains under a clear sky.

AORANGI RESTORATION TRUST ECOLOGICAL RESTORATION STRATEGY 2017-2025 (REVISED 2021)

AORANGI RESTORATION TRUST

ECOLOGICAL RESTORATION STRATEGY, 2017-2025

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PURPOSE

Ecological restoration of the Aorangi area (map, Appendix 1) is being carried out by the Aorangi Restoration Trust (the Trust) with partners including Aorangi Hunters, Ngati Hinewaka, Greater Wellington Regional Council (GWRC), Department of Conservation (DOC), OSPRI/TBfree New Zealand and Victoria University of Wellington (VUW), and Project Crimson Trust (Appendix 2).

This strategy confirms the vision for what the Trust wants to achieve in this south-east corner of the North Island and sets out the broad steps needed on its mission from 2017 to 2025.

The strategy identifies five goals and nine objectives and, within each objective, the outcomes, inputs on which the Trust will focus and partners with whom the Trust will work. This is followed by two tables listing performance measures and project timeline that will enable the Trust to track its progress and guide how best to manage the ecosystems in the project area.

VISION

The Trust sees a healthy and vital Aorangi Forest and surrounds restored to its former glory.



MISSION

By 2045, the Trust aims to have restored the Aorangi Forest and its surrounds to the state where the indigenous forest, coastal and marine ecosystems are healthy and its streams, rivers and wetlands are clean and abundantly inhabited, providing ecosystem services that benefit the rural and urban economies of South Wairarapa and offering places for recreation for the Wellington region.

BACKGROUND AND OVERVIEW

The Aorangi Ranges are a vital feature in the Southern Wairarapa landscape. They and their surrounds form the project area, an expanse of about 55,000 ha (see map, Appendix 1).

The Aorangi Restoration Trust was established in 2011 for the purpose of assisting and cooperating with others to advocate for restoration of the area's native ecosystems; enhance the historic, recreational, archaeological and cultural features and other qualities of the area; encourage public support and involvement in the project; and educate the public, commercial sector and authorities about the area's features and qualities.

Since then, the Trust has established itself on a professional footing with a diverse range of interests represented on its board and partner organisations, including iwi, appointed a project manager to oversee the project and gained the support of a large number of volunteers and funding from business, agency, community and philanthropic sources.

To date, the Trust has established five pivotal projects: Predator control, Monitoring impacts on biodiversity, Penguin recovery, Ecological connections (Tonganui Corridors) and Education.

Project Aorangi Haumanu kia Haumako is 10-year schedule of predator control started in 2014 with the first of three aerial drops of 1080 poison by TBfree New Zealand across 33,000 ha of the project area aimed at controlling possums, carriers of bovine tuberculosis, and rats. The next drop was in the winter of 2017. The final drop is proposed for winter 2022.

Complementing this, the Trust is encircling the 1080 drop zone with a multi-species predator control buffer. While the prime goal is to reduce predator re-infestation of the 1080 zone, the Trust has had huge success from this project in engaging with local landowners and recruiting volunteers.

Monitoring the impact of introduced animals and the measures to control them is critical to restoring biodiversity of an area. Victoria University of Wellington, with funding from TBfree NZ, is assessing the impacts of 1080 in the Aorangi Forest by monitoring birds, insects and vegetation, as well as predator populations, and comparing this with the Remutaka Forest. This gives a whole-of-system understanding of 1080 use, which in 2014 immediately post-1080, significantly, resulted in increased birdsong in all native birds surveyed.

Little penguins have been distinctive locals along the coast, nesting and roosting under baches, although they haven't been seen in abundance on the coast for a long time. The Trust wants to encourage them back. It has set traps along the coastal platform to target ferrets, stoats, rats, feral cats and hedgehogs (penguins' main predators) and set out nesting boxes to help provide the penguins with safe, secure homes.

The ecological connections across Tonganui, the *big South*, are being delivered by the Tonganui Corridors project; a large-scale native tree planting project to create permanent indigenous forest corridors reconnecting the Aorangi and the Remutaka. The Trust is engaged by Project Crimson to deliver this project, in conjunction with our partners.

The fifth success has been in involving younger people, still at school, in the work – seen as essential to securing the long-term future of the project. Two local primary schools helped in 2012 in setting up the Little Penguin project and, in 2016, were grabbed by predator trapping

using self-resetting traps, while also learning about biodiversity and conservation. We hope they will be the ones who, in their lives, continue the work and see what is envisaged here. Appendix 3 includes further information on these four projects.

The Aorangi Forest Park holds considerable appeal to hunters of red deer and feral pigs for its status as a recreational hunting area, designed to control numbers of wild animals. This strategy addresses the need to understand the impact on forest composition of these animals and their population levels that will provide a world-class, wilderness experience for hunters, while also ensuring forest recovery and sustainability.



Predator control is at the centre of this strategy. The strategy specifies the improved levels of predator control that will be critical in achieving the objectives for improving indigenous fauna and flora populations and communities and for re-establishing lost species, such as kakariki, weka, and kaka, and later perhaps kiwi, kokako, tieke, whio and even huia.

The most ambitious goal of this strategy is to become predator-free without the use of fences. This is aimed at meeting Government's interim predator-free goal for areas of mainland of over 20,000 ha. To this end, the Trust is engaging in the national interest and building investment in alternative and enhanced predator control strategies, methods and technologies.

A critical priority for the eight years of this strategy is to build community and iwi support for the project and, in particular, with schools to secure the project's long-term future. The Trust will continue to build understanding and knowledge of the area and of the project and its impacts on biodiversity and on people.

GOALS AND OBJECTIVES

GOALS	OBJECTIVES
Goal 1: Improve and sustain populations and communities of indigenous flora and fauna	<p>Objective 1: Establish effective management of introduced predators and other threats to indigenous fauna</p> <p>Objective 2: Establish effective management of other pest animal, recreationally hunted animal and weed threats to indigenous flora</p> <p>Objective 3: Establish ecological connections to the wider Southern Wairarapa district</p>
Goal 2: Become predator-free without the use of fences	Objective 4: Continuously improve, test and adopt new innovations, approaches, and initiatives
Goal 3: Re-establish populations of lost species of flora and fauna	Objective 5: Investigate and as appropriate translocate lost species
Goal 4: Achieve and maintain financial sustainability	Objective 6: Establish partnerships and seek financial support from a range of sources: local, regional, national and international
Goal 5: Secure the future by growing community and iwi involvement	<p>Objective 7: Recognise Maori cultural and historical ties to the area and engage with tangata whenua</p> <p>Objective 8: Provide the opportunity for a world-class wilderness experience for all visitors: hunters, birders, botanisers, trampers, walkers, runners, bikers and others</p> <p>Objective 9: Build understanding and encourage participation by the community, volunteers and schools</p>



Objective 1: Establish effective management of introduced predators and other threats to indigenous fauna

Explanation: The fauna in the forested area of the Aorangi Range is sensitive to the predatory impacts of possums, rats, mustelids, and feral cats. Coastal, dune, wetland, or riverine habitats within the project area are home to threatened indigenous species such as little penguin and banded dotterel that are vulnerable to predation from mammalian predators and disturbance from a variety of other mammalian threats (such as human, farm stock and dogs) particularly, but not exclusively, during their breeding periods.



Ship rats are the most significant predator of the forest bird species in the area through bird predation during the vulnerable nesting period during spring and summer. Possums are also a significant nest predator, particularly of kereru and kaka. Mustelids, particularly stoats, are also predators of the species that are present and a primary agent of decline for some of the lost / rare bird species such as kaka and kakariki.

The control of this suite of predatory mammals can be undertaken efficiently over big forested areas with aerially dropped cereal baits containing 1080 poison. Possums and rats are targeted directly through primary poisoning and mustelids and cats through secondary poisoning when they consume rat and possum carcasses. However, rat and stoat populations recover quickly through immigration and breeding, and can return to pre-drop levels 6-18 months post control.

This means that control should be timed to ensure the post operational period of low rat and stoat abundance occurs during the spring-summer nesting period when successful breeding outcomes will contribute to population growth. The project already has an existing cycle of 1080 operations over the Aorangi Range on a 3-year return time. It is anticipated that this frequency of control will bring rat (and mustelid and feral cat) numbers to levels that will allow indigenous forest birds to breed successfully, once, twice or three times annually.

Possum populations have lower rates of increase and 3-yearly control should maintain low abundance and impacts (Objective 2). Securing resourcing to continue these operations post-2020 (when OSPRI managing ceases) is a priority. The design of these future operations should be reviewed, and in particular consideration given to adopting a more responsive regime that considers the effects of beech mast events, with rats expected to be the primary target.

The penguin project is well-established. Penguins are at risk during nesting (July-December) and annual moult (January-March) from mammalian predators (dogs, cats, mustelids) and encroachment of human activities, and traffic at some sites.

Over the life of the strategy, other indigenous fauna with additional threat management needs, such as bats, may be identified and prioritised for management.

Ideally, with increased project size, refined strategy, methods and new technologies, predator control will occur in a fully integrated manner to eliminate predators over the entire project area (and beyond). The Trust will seek to improve predator management to this scale and intensity (Objective 3).

The Trust undertakes mustelid, rat, hedgehog and feral cat control and its immediate plan is to complete this predator control buffer to surround the 33,000 ha aerial 1080 treatment area. This aims to reduce the source of predator reinvasion into core protected areas (such as the Aorangi Range and coastal penguin zone) and enhance indigenous fauna populations on neighbouring land. The predator control buffer may include traps and poisons and to be accompanied by monitoring of pest levels.

Outcomes:

- Populations of indigenous forest birds increase in abundance in the Aorangi Range
- The little penguin population using the Palliser coastline is stable or increasing
- Other indigenous fauna populations also increase: bats, insects, lizards and reptiles

Focus for 2017-2025

In the Aorangi Range

Inputs	By Whom
<ul style="list-style-type: none"> • Deliver 1080 operations (against possums, rats, stoats) over >30,000 ha according to agreed method details in the months of winter or spring of 2017 and 2020. 	<i>OSPRI, the Trust, DOC, GWRC</i>
<ul style="list-style-type: none"> • Secure funding and identify lead agency to conduct operations post 2020 (on an improved schedule, potentially based around averting mast-induced predator irruptions). These operations use a reviewed operational design (frequency, seasonal timing in spring, size and shape of area) and method to achieve high and optimally timed pest (rat) kills. 	<i>The Trust, DOC, GWRC</i>
<ul style="list-style-type: none"> • Maintain best practice in predator control buffer around 1080 zone to: reduce re-infestation; sustain ownership of the project by local community; and enhance indigenous species on neighbouring lands. 	<i>The Trust, GWRC (possum and other predator control on rateable land including Key Native Ecosystems projects)</i>
<ul style="list-style-type: none"> • Monitor the relative abundance of target pests in response to predator control. • Monitor indigenous fauna and flora to evaluate response to predator control in the Aorangi Range. 	<i>The Trust and/or partnering agency/institute including DOC and VUW (Funded by OSPRI)</i>

For the penguin population on the coastline

Inputs	By Whom
<ul style="list-style-type: none"> • Control predators (cats, rats, hedgehogs and mustelids) to reduce the threat at penguin nest and roosting areas. 	<i>The Trust</i>
<ul style="list-style-type: none"> • Protect penguin nesting and roosting sites from human disturbance, farm stock, and dogs. Methods will include public awareness and advocacy. 	
<ul style="list-style-type: none"> • Enhance nesting and roosting areas through provision of nest boxes, and plantings to enhance the surrounding habitat. 	
<ul style="list-style-type: none"> • Implement measures of penguin population and breeding success. 	

Objective 2: Establish effective management of other pest animals, recreationally hunted animals, and weed threats to indigenous flora

Explanation: Red deer and feral pigs are a valued recreational resource in the Aorangi Range (which includes a Recreational Hunting Area) and on much of the surrounding private land. The impact of the long-established deer population on the forest composition is probably very significant, but determining and agreeing on a level of deer abundance that can ensure the recovery or sustainability of a diverse indigenous ecosystem is technically and socially challenging. Measures of the forest condition, deer abundance, and deer harvest will help inform management needs collectively with hunters.



In 2011, DOC identified that the eradication of goats from the park was feasible and the preferred strategic option for management. The removal of goats has the support of stakeholders, including Aorangi recreational hunters and most landowners.

Possums will be managed in the Aorangi Range with aerially applied 1080, as detailed under Objective 1, to maintain low abundance and impacts, including those on sensitive flora such as rata and mistletoe. After the ending of OSPRI funded possum control, the Trust will coordinate with GWRC to determine the strategy for continued possum control in the project area.

Some weeds may threaten the structure and function of indigenous ecosystems, particularly coastal habitats, wetlands, and regenerating forests. The Trust will coordinate with DOC and GWRC to determine if and how it can best complement weed control undertaken by these agencies, focusing on weed species/infestations that threaten indigenous habitats. A possible example is the braided bed of the Opouawe River, a breeding ground of the Banded Dotterel.

Outcomes:

- Adequate regeneration of indigenous plant species necessary to sustain healthy indigenous ecosystems: flora and fauna
- Regeneration allows recovery of forest that has been subject to browsing damage or possible canopy collapse
- Possum-vulnerable forest canopy extent and density reflects the near absence of possum browse
- An absence of goat impacts on conservation values in the Aorangi Range and surrounding land
- No further impact, or reduced impact, of weeds on valued indigenous plant communities

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> Assemble and present baseline information on native flora and fauna and ecosystems present. Conduct new surveys of biota where knowledge gaps exist. 	<i>The Trust, DOC, VUW and GWRC</i>
<p>Manage the impacts of recreationally hunted deer and pigs:</p> <ul style="list-style-type: none"> Review data and evaluate the relationship between deer population and forest regeneration and composition in the project area. Share this information with hunters for collective learning. Manage deer and pig populations through recreational hunting. The resource value or benefits of recreationally hunted animals within a wilderness area will be managed under Objective 7. Monitor forest structure/composition (using permanently located 20X20m plots and/or the seedling ratio index to evaluate likely impact of ungulate browsers on the forest understorey). Re-measure long term vegetation monitoring plots. 	<i>Aorangi Hunters, the Trust, DOC and GWRC</i>
<p>Eradicate feral goats:</p> <ul style="list-style-type: none"> Maintain the support of stakeholders. Control the goat population to remove animals at a faster rate than they can breed. Ensure all goats are put at risk by the operation. Manage the risk of reinvasion from outside the project area to prevent recolonization. Ensure goat farming operations in the project area do not present an unreasonable risk of escapees. 	<i>DOC and neighbouring landowners</i>
<p>Manage browsing impacts of possums: see Objective 1</p> <ul style="list-style-type: none"> Monitor indigenous fauna and flora to evaluate response to predator control 	<i>The Trust and partner agency/institute including DOC & VUW</i>
<p>Manage the impacts of weeds</p> <ul style="list-style-type: none"> Identify and prioritise weed species and areas for control. Focus on those weeds likely to cause significant change in the function of indigenous ecosystems. Ensure the project can complement or enhance weed management undertaken by other agencies (DOC and GWRC). Develop a programme of prioritised control to reduce infestations and prevent further spread/impacts. Undertake weed control. 	<i>The Trust to coordinate with DOC and GWRC</i>

Objective 3: Establish ecological connections to the wider Southern Wairarapa district

Explanation: In order to function ecologically and enhance its sustainability, the Aorangi forest needs to be connected across the *big South* Wairarapa valley. Natural regeneration of native bush in re-establishing natural ecosystem processes benefits the whole landscape, and helps people's lives, socially, culturally, and economically.



The connections across the *big South* is envisaged as being through forest corridors that provide shade and shelter, improve water quality of streams and rivers, reduce nutrient runoff from farms and lock up atmospheric carbon, reducing climate warming.

The context for the connections is the decline nationally of all stocks of natural capital – soils, water, climate, biodiversity and marine life – putting our lives, well-being and biological economy in peril. The answer is investment into intergenerational protection of natural capital, achieved by growing more native trees and restoring the diversity of life around them.

Outcomes:

- The sustainability of the indigenous floral and fauna is enhanced through the establishment of ecological corridors to connect the Aorangi Forest Park to other existing ecological areas in South Wairarapa

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> • Establish funding programme for a corridor planting programme 	<i>The Trust and Project Crimson</i>
<ul style="list-style-type: none"> • Manage the planting programme: • Establish an expert advisory group to advise on plants, planting and management. • Engage professional Operations Manager. • Select sites, develop planting plans, fencing plans, and select and source plants. • Manage and monitor sites, post-planting. • Complete four-year planting programme with Project Crimson by 2025. 	<i>The Trust (funded by Project Crimson), Ngati Hinewaka, Ngati Kahungunu ki Wairarapa, Rangitane o Wairarapa, Pukaha to Kawakawa Alliance (P2K), Ducks Unlimited, South Wairarapa Biodiversity Group, Friends of Onoke Spit, Greater Wellington Regional Council (GW) Department of Conservation (DOC), QEII National Trust, and Victoria University of Wellington</i>

Objective 4: Continuously improve, test and adopt new innovations, approaches and initiatives

Explanation: How best to manage the ecosystems of the Aorangi forest and surrounds requires continuous improvement and testing of options. Future management will be informed by better understanding of these ecosystems, science research and on-site monitoring and assessment. A focus over the term of this strategy will be predator control.



The predatory impacts of rats, mustelids, feral cats, possums and hedgehogs will be reduced by the programme of site-/value-led control under Objective 1. Further suppression or even elimination of predators from all or significant parts of the project area would improve the levels of recovery for some indigenous species and communities. This would go further towards achieving the goals and vision of the Trust.

The Trust currently is completing a predator control buffer around the 1080 zone, with the intent of reducing the number of predators (multiple species) re-entering the core management areas. The Trust will refine practices and investigate and trial new methods and approaches to improve the efficacy of this work.

There is growing national interest and investment, in which the Trust will engage, in alternative and enhanced predator control strategies, methods, and technology. This has been further stimulated by Government's recently announced Predator Free 2050 goal.

Outcomes:

- Indigenous ecosystem and species recovery is further enhanced by the elimination or near elimination of some limiting predator threats. In forest ecosystems the priority predators are rats, stoats, and possums

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none">• Evaluate, field-trial and adopt emerging techniques/technologies that can improve the efficacy of predator control in core or buffer predator control areas. Collaborate where possible.• Assess and use advances in pest 'barrier' technologies in support of this objective.• Identify critical barriers, risks and milestones for the Aorangi project contributing to Government's Predator Free 2050 goal.• If PF2050 is feasible, develop and implement a PF2050 plan for the Aorangi area, or otherwise regularly review feasibility of science or policy initiatives reducing identified barriers or risks of achieving the outcome.	<i>The Trust, partnering agencies/institutes including GWRC, DOC and VUW</i>



Objective 5: Investigate and as appropriate translocate lost species

Explanation: A number of local extinctions of species have occurred in relatively recent times in the Aorangi Range and project area. North Island kiwi, North Island weka and whio are three obvious examples. Also, kakariki and North Island kaka, which have been recorded only infrequently in recent times, are considered 'lost' species for the purposes of this strategy. They

may require additional translocated individuals and intensified threat management to recover to levels that constitute viable populations.

The Trust is working to determine if the project area is suitable for the re-establishment of such bird species populations, based on estimated predator numbers present and habitat condition. The Trust also will commission advice on a suite of species that could be considered for re-establishment and identify opportunities to prioritise further work under this objective.

Re-establishment projects for particular species will require detailed plans that may include pest management additional to that to be undertaken in Objective 1.

Outcomes:

- A population of kakariki and/or another bird species is re-established
- Other lost species (fauna and flora) are re-established

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> • Undertake a site-habitat assessment of the potential of the site for reintroductions of kakariki, weka and kaka. 	<i>The Trust to engage an expert consultant</i>
<ul style="list-style-type: none"> • Obtain advice on the suite of species that could be suitable for reintroduction and undertake site-habitat assessments for the most suitable species. 	<i>The Trust to commission an assessment</i>
<ul style="list-style-type: none"> • Develop and submit to DOC a proposal to translocate identified species to the project area. • Review rat monitoring measures and revise targets. • Any requisite predator control over and above that for other objectives will need to be implemented and proven effective, prior to a planned translocation occurring. This must be ongoing thereafter. • Secure capability and capacity to support reintroduction needs. Any necessary facilities built and serviced on-site. • Translocate individuals of the nominated species. • Undertake monitoring of reintroduced species to determine establishment success. 	<i>The Trust with iwi, businesses, and community organisations</i> <i>Support from DOC</i>



Objective 6: Establish partnerships and seek financial support from a range of people and organisations: local, regional, national and international

Explanation: To ensure the project is a success long-term, the Trust will secure investment in it, including for

use of alternative and enhanced predator control strategies, methods, and technology.

The current activities of the Trust, level of predator control, and project support are a strong platform for projects that would contribute to two of the interim 2025 goals of Government's Predator Free 2050 announcement, namely 1) Suppress predators on a further 1 million hectares and 2) Eradicate predators from at least 20,000 hectares without the use of fences.

Outcomes:

- Confirmed annual budgets
- Finance secured for next 5 years
- Established and secured partnership for the interim 2025 goals of Predator Free 2050
- Financial support of partners secured for the project
- Operational support of partners secured for the project
- In-kind support of volunteers secured

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> • Develop and implement plan to secure finance for next 5 years. • Identify critical barriers, risks and milestones for the project contributing to the Predator Free 2050 goal (see also Objective 3). • If PF2050 is feasible, develop and implement a PF2050 plan for the Aorangi area, or otherwise regularly review feasibility of science or policy initiatives reducing identified barriers or risks of achieving the outcome (see also Objective 3). 	<i>The Trust and partners</i>
<ul style="list-style-type: none"> • Prioritise communications with project partners regarding activities occurring within or nearby the project area. • Ensure options for in-kind voluntary support for the project and information about it are communicated widely – through the Trust's website, presentations and media releases. • Develop and implement plan to secure partnerships and finance. • Identify potential new partners and funders. • Engage and, where fitting, collaborate with neighbouring projects, such as Wairarapa Moana and Remutaka Forest. 	<i>The Trust and partners</i>



Objective 7: Recognise Maori cultural and historical ties to the area and engage with tangata whenua

Explanation: Ngati Hinewaka are the people of the south-east Wairarapa coast. The hapu of Kahungunu ki Wairarapa is proactively restoring its land, recording and preserving wahi tapu and significant cultural sites where early Maori occupation resulted in extensive middens, kainga, pa, uru pa, cultivation sites

and karaka groves.

Specifically important archaeological sites in the Aorangi project area include pa and garden sites on the coastal platform (including Pukeatua and Orangikorero pa and Black Rocks, Pararaki and Te Humenga gardens), and further inland (Tauanui Pa and Moikau and Makotukutuku house sites). A reconstruction of the 15th century Makotukutuku sleeping whare, built by Ngati Hinewaka, and the stone patu muka from the Pararaki River mouth (pictured) are notable displays at Te Papa Museum of New Zealand.

Rangitane's area of interest also spans to the project area and Cape Palliser. The Rangitane Deed of Settlement signed on 6 August 2016 is the final settlement of all historical Treaty of Waitangi claims of Rangitane and includes jointly vesting the bed of Wairarapa Moana in Rangitane and Ngati Kahungunu ki Wairarapa. A team from Rangitane o Wairarapa regularly services a trapline in the Mangatoetoe catchment, near Cape Palliser.

Outcomes:

- Engagement and participation of iwi
- Mutual benefits achieved from participation by iwi in the project
- Iwi representation maintained on the governance board of the Trust

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> • Promote work of Ngati Hinewaka hapu to protect wahi tapu and other significant cultural sites and, as appropriate, assist in this. • Work with hapu/iwi to engage local whanau/marae in project. • Work with Kohunui Marae in funding and operation of a native tree nursery to supply trees to the Tonganui Corridors project. • Hold hui in local marae to identify mutual interests and areas for cooperation. • Ensure iwi aspirations are reflected in any management plan. • Ensure project governance structure protects iwi interests in area. 	<p><i>The Trust with Ngati Hinewaka, Kahungunu ki Wairarapa, Rangitane o Wairarapa, and Kohunui Marae</i></p>



Objective 8: Ensure opportunity for a world-class wilderness experience for all visitors: hunters, birders, botanisers, walkers, runners, trampers, bikers and others

Explanation: Aorangi Forest Park is a recreational hunting area. Hunting is used to help control numbers of deer and pigs, which

harm native plants and wildlife. A multitude of other visitors can walk, tramp and even run the tracks and coastal routes that offer sites and features of interest and stunning views of Palliser Bay and Remutaka and Kaikoura mountains. For four-wheel-drive enthusiasts and mountain bikers, a 26 km route through the park from Te Kopi to Waikuku is opened up several times a year. There are six standard huts in Aorangi Forest Park, with six legal access points via Kaiwaka, White Rock, Haurangi, Whakatomotomo, Whatarangi, and Cape Palliser roads. Private access via Makotukutuku and Pararaki streams and Ngapotiki/Stonewall requires landowner consent.

Sites of special interest to visitors include the hoodoo earth pillar formations of the Putangirua Pinnacles Scenic Reserve, seal colonies near Cape Palliser, and large numbers of archaeological, geological, historic and Maori cultural features along Palliser Bay and the south coast.

Outcomes:

- Opportunities provided for a wilderness experience for all visitors
- Healthy deer herd and pigs, consistent with healthy, vital indigenous ecosystems
- Access to tracks, accommodation and sites of significance and information on them

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> • Engage with hunters to identify what animal populations the area can sustain to ensure healthy animals & forest ecosystems. • Develop an agreement with hunters around stock numbers on a per catchment basis. • Engage with key people to involve and educate local hunting clubs, to lead behavioural change around sustainable hunting. • Maintain and enhance hunting experience by engaging with hunting community – deer and pig hunter groups. 	<i>The Trust, DOC, GWRC, Aorangi Hunters, Hutt Valley Branch of NZ Deerstalkers' Association and pig hunters</i>
<ul style="list-style-type: none"> • Look for ways to upgrade huts and tracks and improve access. • Promote and enhance the recreational, historic, archaeological and cultural features and qualities of the project area. • Engage with recreational user groups – hunters, runners, bikers, trampers to raise awareness of the restoration project. • Promote biking, running and tramping opportunities, providing hut facilities, access routes and track inventory. • Provide information boards and brochures for visitors on the area's culture, history, geology and biodiversity. 	<i>The Trust, with tramping, biking, running and 4WD clubs; DOC (huts and tracks), and the private sector (tourism operators and accommodation)</i>

Objective 9: Build understanding and encourage participation by the community, volunteers and schools

Explanation: Community involvement, and in particular involving those still at school, is essential to the project's long-term future.

Students from two local primary schools were involved in building and putting out penguin nesting boxes when the Trust and its Penguin Project were first established.



Since, educational engagement has been revived with a predator education project that starts with primary school children learning about predators and trapping and goes on to learning about flora, fauna and biodiversity and conservation. Three different age groups are involved and the project will also engage with secondary schools/colleges in the region. The Trust sees all ages being involved, making informed decisions on what's needed for restoration of the area, so that the next generation can also develop a love for and protect the area's biodiversity.

Outcomes:

- Build an understanding of the project area's and the project's contribution to social and cultural well-being, the economy and ecosystem services
- Increased public awareness and community engagement
- Future-proof what is learned through involving children and young people
- Volunteers participating in all aspects of the project
- All Health and Safety obligations are complied with

Focus for 2017-2025

Inputs	By Whom
<ul style="list-style-type: none"> • Review most effective ways of using community volunteers in project. • Promote public interest and involvement in the project. • Educate the public, businesses, funders and agencies about features and qualities of the area including the ecosystem services it provides. • Work in partnership with others to ensure understanding and buy-in to project (and value of its links to neighbouring projects). • Maintain and update website, and make links to key web resources • Set-up and provide appropriate access to an information database, including historic and current data (and IP) on the project and its area. 	<i>The Trust, GWRC and partners</i>
<ul style="list-style-type: none"> • Further develop education project including field-trips for schools. • Schools to take on restoration work at chosen sites, learn about pests, habitats, biodiversity, ecosystem function, and future planning. 	<i>The Trust, partner schools and colleges</i>
<ul style="list-style-type: none"> • Set up a friends' network and provide regular updates on progress. • Engage volunteers for specific projects (trapping, planting, website). • Develop health and safety protocols and training for volunteers. 	<i>The Trust and DOC</i>

PROJECT PERFORMANCE MEASURES

The following performance measures have been developed to provide an indication of key milestones over the 8-year timeframe of this strategy, 2017-2025.

Objective	Performance Measures
1. Establish effective management of introduced predators and other threats to indigenous fauna	<ul style="list-style-type: none"> • Within the Aorangi Range following aerial 1080 operations in 2017: Possum waxtag index of <5%; Rat tracking tunnel rate of <2%. Or equivalent levels measured by alternative indices. [Rat monitoring measures to be reviewed and targets revised by 2020]. • Biodiversity monitoring information is available and sufficiently precise to evaluate whether the sought outcomes are being achieved. • Low predator (cat, hedgehog, mustelid) abundance (levels to be confirmed) along coastal strip at penguin nesting/roosting sites. Determined through catch per unit effort patterns and adherence to 'best practice' trapping. • Sufficient penguin nesting structures available at key sites • Penguin nesting/roosting areas are not compromised by disturbance or encroachment. • Penguin population and breeding success measures are available.
2. Establish effective management of other pest animal, recreationally hunted animal and weed threats to indigenous flora	For possums (same target as Objective 1):
	<ul style="list-style-type: none"> • Within the Aorangi Range following operations at in 2017, 2020: Possum waxtag index of <5%; Or equivalent levels measured by alternative indices. Targets revised after 2020.
	For deer and pigs
	<ul style="list-style-type: none"> • There is a shared empirical understanding of deer abundance (faecal pellet indices), hunter use and deer harvest and vegetation condition. • Using this information there are improved attempts to manage deer and pigs to levels informed by habitat sustainability.
	For goats
	<ul style="list-style-type: none"> • The current distribution of goats in the project area has been reduced by 2021. • Goats are not known to be established in the project area outside of the current distribution (or the removal of any new population loci is imminent) by 2021. • Goat abundance in each of the current control zones has been further reduced by 2021. • Confirmation that goats have been eradicated (2025).
	For weeds
	<ul style="list-style-type: none"> • Infestations reduced according to agreed prioritised needs annually.
3. Establish ecological connections to the wider Southern	<p>By 2025</p> <ul style="list-style-type: none"> • At least 25 landowners engaged in fencing and planting. • At least 41 ha planted in native species funded by the Trust. • A survival rate of trees planted of 80%. • At least 20 personnel involved in the project. <p>Beyond 2025, further results measured, such as</p>

Wairarapa District	<ul style="list-style-type: none"> the quantity and value of atmospheric carbon reductions. Number and species of native plants sourced from Kohunui Marae nursery. Native plant cover on planted sites. Increase in numbers of currently threatened birds, skinks, gecko, insects, stream fauna. Water quality improvements in streams entering the Ruamahanga River. Numbers of people using tracks established through the corridors.
4. Continuously improve, test and adopt new innovations, approaches and initiatives	<ul style="list-style-type: none"> A feasibility study for PF2050 is completed (2017-18). Recommendations of the study are followed. If feasibility is high enough, a plan is developed. A secured PF2050 partnership for interim 2025 goal 1. A secured PF2050 partnership for interim 2025 goal 2.
5. Investigate and as appropriate translocate lost species	<ul style="list-style-type: none"> Feasibility of reintroducing kakariki, weka, kaka confirmed. If reintroduction is deemed feasible pest control targets required to address species needs are achieved. Pending all requirements being met and approval being obtained, a translocation of kakariki and/or another species takes place. The re-establishment success of any reintroduced species is understood.
6. Establish partnerships and seek financial support from a range of sources	<ul style="list-style-type: none"> Funding secured for the project. Communications prioritised with project partners. A feasibility study for PF2050 is completed (2017-18). Recommendations of the study are followed. If feasibility is high enough, a plan is developed. A secured PF2050 partnership.
7. Recognise Maori ties to area & engage	<ul style="list-style-type: none"> Hui held with iwi. Representation of mana whenua on the Trust board. Participation in projects.
8. Provide the opportunity for a world-class wilderness experience	<ul style="list-style-type: none"> Tracks maintained to standards set by DOC. Information provided on the sites and the opportunities available.
9. Build understanding and encourage participation by the community, volunteers and schools.	<ul style="list-style-type: none"> Review conducted of the most effective way of using community volunteers to assist with project objectives. Provide regular updates (quarterly). Engage with local print and other public media. Set up social media page for this project by 2018. <p>Annual report on children's learning and special events:</p> <ul style="list-style-type: none"> Learning about the natural environment and encouragement to consider further conservation issues. Developing understanding of predators, their threat to native species and methods of control. Using literacy and numeracy skills to present results.

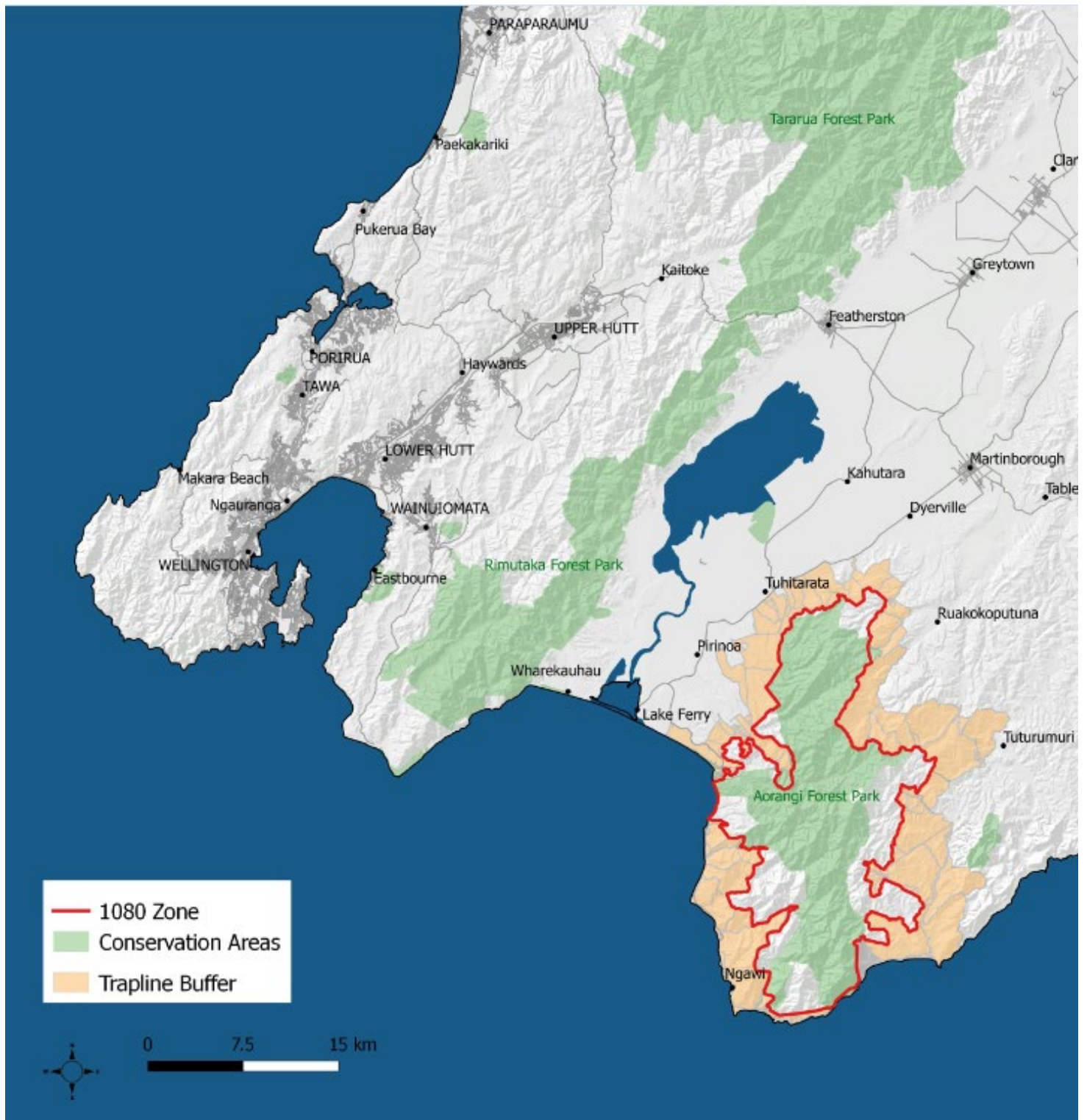


PROJECT TIMELINE

Year	Actions / Inputs	* Ongoing
2017-2018	<ul style="list-style-type: none"> • Deliver aerial 1080 operation (TBfree NZ) in winter or early spring. • Develop and implement plan to secure finance for next 5 years. • Complete and maintain best practice in predator control buffer* • Monitor to determine relative abundance of target pests.* • Control predators and protect penguin nests from disturbance.* • Evaluate, field-trial and adopt new predator control technologies.* • Conduct a feasibility study for area to contribute to PF2050 goal. • Secure funding for project including 1080 operations post 2020.* • Engage and, where fitting, collaborate with neighbouring projects.* • Promote public support and involvement in the project.* • Ensure project information is communicated widely.* • Work with iwi; hold annual hui; ensure iwi aspirations are reflected in restoration plans and governance structure protects iwi interests. • Educate the public, businesses, funders and agencies on features and qualities of the area including its ecosystem services * • Further develop education project with local schools.* • As appropriate, promote and assist work of iwi to protect key sites.* • Engage with hunters to identify sustainable animal populations * • Identify potential new partners and funders.* • Review most effective way of using volunteers in project.* 	
2018-2019	<ul style="list-style-type: none"> • Assemble information on native species and ecosystems present. • Evaluate likely impact of deer and pigs on the forest understorey. • Ensure all goats are at risk and prevent recolonization.* • Conduct new surveys of biota where knowledge gaps exist. • Monitor and assess penguin populations and breeding success.* • If PF2050 is feasible in Aorangi, develop and implement a plan.* • Undertake site-habitat assessment for potential bird reintroductions. and implement and prove effective further requisite predator control* 	

	<ul style="list-style-type: none"> • Obtain advice on bird species fit for transfer, and where conditions correct, submit proposal to DOC to translocate identified species. • Secure capability and capacity to support bird reintroduction.*
2019-2020	<ul style="list-style-type: none"> • Translocate individuals of nominated species. Monitor species.* • Identify and prioritise weed species and areas for control. • Establish corridor planting project funding.
2020-2021	<ul style="list-style-type: none"> • Develop a programme of prioritised weed control / prevent spread. • Carry out weed control.* • Deliver 1st forest corridor planting round.
2021-2022	<ul style="list-style-type: none"> • Deliver 2nd corridor planting round.
2022-2023	<ul style="list-style-type: none"> • Deliver 3rd of three aerial 1080 operations (TBfree NZ). • Deliver 3rd forest corridor planting round.
2024-2025	<ul style="list-style-type: none"> • Confirm goats have been eradicated from the project area. • Deliver 4th forest corridor planting round.

Appendix 1: Map showing Aorangi restoration project area



Appendix 2: PARTNERS

Aorangi Restoration Trust (the Trust)



The Trust was established in 2011 to manage and restore the ecological health of the indigenous ecosystems of the Aorangi Forest Park and adjacent lands. These ecosystems include indigenous lowland and montane forests, wetlands, reverting pastoral land and coastal environments. The Trust represents a collective of interests of local landowners, community, iwi and recreational hunters and Forest and Bird.

Aorangi Hunters

In 2005, a group of local deerstalkers advocated for the inclusion of deer repellent in 1080 used in operations to control possums (carriers of bovine tuberculosis) in the Aorangi Forest Park. Use of deer repellent, nationally, has resulted in insignificant deer losses demonstrating the effectiveness of this pest control method. Hunters in the Aorangi receive an accessible world-class wilderness and hunting experience..

Department of Conservation (DOC)



DOC is central government organisation charged with conserving the natural and historic heritage of New Zealand and has the statutory mandate to manage the Aorangi Forest Park (RHA). In doing so, it is committed to working with a range of user and interest groups with differing objectives, seeking to find commonality to achieve shared outcomes. DOC is working with all groups to maximise their ambitions within a collective and collaborative framework.

Forest and Bird New Zealand



Originally established in 1923, Forest and Bird is a not-for-profit organisation whose role has been extended in recent years to include protection of all native species and wild places – on land and in our oceans, lakes and rivers. It has 70,000 members and works with a variety of local, national & international partners.

Greater Wellington Regional Council (GWRC)



GWRC has a number of statutory responsibilities for the sustainable management of regional parks and private land within the region. Responsibilities that affect land neighbouring Aorangi Forest Park include land management, biosecurity, biodiversity, and water quality and quantity. GWRC is one of the land owners surrounding the Aorangi Forest Park and the council also manages several KNE sites in the area. GWRC supports the Aorangi Restoration Trust where it aligns with council mandate and goals, and will work with other parties to contribute the staff and financial resources at its disposal.

Ngati Hinewaka



The rohe of Ngati Hinewaka, a hapu of Kahungunu ki Wairarapa, encompasses the whole of the Aorangi Forest and surrounds to Lake Onoke and Ruamahanga River in the west, Martinborough in the north and the Pacific coast in the east. The hapu also owns approximately 2,000 hectares adjacent to the southern end of the Forest Park. Here, Kupe made his headquarters – Matakītaki a Kupe – and the geological formation, Nga ra a Kupe, is the sail of his canoe. The hapu is proactively restoring its land, recording and preserving wahi tapu and significant cultural sites.

OSPRI



OSPRI is a not-for-profit limited company that was established on 1 July 2013, when the Animal Health Board and National Animal Identification and Tracing merged. Shareholders are DairyNZ, Beef+Lamb New Zealand and Deer Industry New Zealand. TBfree New Zealand is a wholly-owned subsidiary and programme of OSPRI.

Project Crimson



Project Crimson Trust is an environmental charity that funds and facilitates large-scale native tree restoration projects around Aotearoa. Initially focused on the protection and renewal of pōhutukawa and rātā, Project Crimson's work expanded in 2016 to include all native tree species.

TBfree New Zealand



TBfree New Zealand implements the National Bovine TB Pest Management Strategy, which seeks to eradicate bovine tuberculosis from New Zealand. This requires long term investment in pest management across vast tracts of rural land. In 2006 and 2009, aerial drops of 1080 with deer repellent were applied in the Aorangi area. Subsequently, Project Aorangi Haumanu kia Haumako was established – a 10-year schedule of aerial 1080 drops and ground control planned for the Aorangi Forest Park and surrounds, an area of 33,000ha. The first drops were in 2014 and 2017, with a subsequent drop planned for 2022.

Victoria University of Wellington



Victoria University of Wellington is contracted by the Trust to monitor plant survival and cover in the Tonganui Corridors planting project and by TBfree New Zealand to monitor the impacts of the current 10-year schedule of 1080 drops in the Aorangi Forest. Victoria University monitors predators, including possums, rats and mustelids, as well as indigenous biota, including birds, insects, lizards and vegetation.

Appendix 3: KEY PROJECTS



Predator Control

At the centre of this project is a cycle of three aerial applications of 1080 poison across an area of 33,000 ha by TBfree NZ aimed at controlling possums, carriers of bovine tuberculosis, and rats. The first application was in August 2014 and TBfree NZ has committed to a further two drops, with the next in the winter of 2017, followed by another due in 2020.

The Trust is encircling the 1080 drop zone with predator control measures with the goal of reducing re-infestation of the 1080 zone and movement of predators from the forest into surrounding land, including the coastal penguin zone. Much of the land is in private ownership and the Trust is fortunate to have support of local landowners. They and many other volunteers, both local and regional, help check and service the traps.

What the Trust is doing:

- Partnering with TBfree New Zealand and Greater Wellington Regional Council in their predator control work in and around the Park.
- Encircling the 1080 zone with over 140km predator traplines, with traps up all the major streams travelling out of the park, and traps every 100-200m.
- Recruiting people to manage, service and report on these traplines monthly.



Monitoring Biodiversity

Understanding the impact of introduced animals and measures to control them is essential to restoring biodiversity of the area.

Victoria University of Wellington, with funding from TBfree NZ, is assessing the impacts of 1080 by monitoring birds, insects and vegetation, as well as rodent and mustelid predator populations, in the Aorangi Forest and comparing this with the Remutaka Forest. The work aims to provide a whole of system understanding of 1080 use. Part of this work is the assessment of birdsong before and after 1080 drops, which has shown increases in all native birds surveyed, post-1080. Monitoring in the forest in 2016 has also identified an as-yet unclassified species of forest gecko.

Penguin Project

Little penguins have been distinctive locals on South Wairarapa beaches, nesting and roosting under baches near the shore. Local fishermen see them at sea, although they haven't been seen in abundance on the coast for a long time. The Trust wants to encourage them back along the coast.



What the Trust is doing?

- Setting traps along the coastal platform and up the rivers to target penguins' main predators – ferrets, stoats, rats, feral cats and hedgehogs.
- Putting out penguin nesting boxes to help provide the penguins with safe, secure accommodation.
- Establishing native coastal forest plants such as ngaio (*Myoporum laetum*) and taupata (*Coprosma repens*) to increase the natural cover.



Ecological Connections Project

Ecological connections are being made between the Aorangi and the Remutaka through the Tonganui Corridors project, a large-scale native tree planting project primarily on private land, to create permanent forest corridors across Tonganui, the *big South Wairarapa* valley.

To deliver on this project, the Trust is partnering with landowners, iwi, Kohunui Marae, Pukaha to Kawakawa Alliance, Greater Wellington Regional Council, Department of Conservation, Victoria University of Wellington, QEII National Trust and others, with the support of the Project Crimson Trust, backed by OMV NZ Ltd.

What the Trust is doing?

- Established an expert group to advise on plants, planting and management.
- Engaged a professional operations manager to develop plans for each site, and manage site preparation, weed control, plant supply, labour, traps and trapping.
- Engage research providers and/or contractors to monitor and report on impacts on native biota (both flora and fauna) of the fencing and planting of forest corridors and of predator control on predator populations.

Education Project

Involving the younger people, still at school and college, is seen as essential to securing the long-term future of the restoration project.

Boosting the Birdsong is a predator education project for primary school students. Kahutara and Pirinoa Schools are the first schools to be involved. Both are small, rural, local primary schools and are taking steps to engage with other neighbouring schools.

The project was started in August 2016, with generic teaching and learning around predators and predator control methods, before moving to learning about biodiversity and conservation.

Students will monitor and control pests around the schools and in bush areas near-by in the Aorangi Forest Park. The Trust sees the students becoming more involved, making informed decisions on what is needed for restoration of the area, so that their generation will be able to witness what is currently envisaged.





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Aorangi Restoration Trust

Trustees: Clive Paton, Anne Firmin, Tony Didsbury, James Law, Chris Lester, John Bissell, Joe Hansen and
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