

# KIA TOITŪ HE KAURI KEEP KAURI STANDING

New Zealand's strategy for  
managing kauri dieback disease



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## **Acknowledgements**

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# Foreword

Kauri is a much loved tree species and has a special place in New Zealand's northern ecosystems and history. It shapes the character and function of forests where it occurs, is a taonga tuku iho of the Māori ancestral spiritual world and is of significant cultural importance to all New Zealanders.

But all is not well with kauri. The sad fact is that historic commercial harvesting and land clearance left us with a small fraction of these formerly widespread majestic forests. And now all kauri are under threat by a disease that kills indiscriminately.

Kauri dieback is caused by a fungus-like organism called *Phytophthora taxon Agathis* (PTA) and although we think it's been killing kauri since the 1950s, it's only recently that scientists have been able to identify PTA and its role in kauri dieback. What we have learned has given us cause for great concern. It kills kauri of all sizes, from the smallest seedlings to the mightiest of forest giants. We are also yet to observe any natural resistance to the disease, which means in time all kauri could potentially succumb to it.

Armed with this knowledge, we launched a partnership management programme in 2009 involving tāngata whenua from areas with naturally occurring kauri, Ministry for Primary Industries (MPI), Department of Conservation (DOC), Auckland Council (AC), Northland Regional Council (NRC), Waikato Regional Council (WRC), and Bay of Plenty Regional Council (BOPRC). We had a shared problem, so it was obvious to us that we needed to share resources, expertise and decision-making if we were to have any hope of protecting kauri.

The Kauri Dieback Management Programme (the Programme) has significantly lifted our knowledge of the disease: what it does, where it is, and options for managing it. In the last five years we have reduced spread risk through managing things that can spread contaminated soil. Most of the focus has been on forest users where our aim is to improve track conditions (less dirt moving means less risk of the disease spreading), provide cleaning facilities and encourage people to adopt good hygiene practices when they enter and leave forests.

An independent review confirmed that we've made a lot of progress in the last five years, but we can and must do better. Like it or not, PTA is here to stay for the foreseeable future so our challenge is to find ways for kauri to coexist with this organism so future generations can enjoy the privilege of enjoying healthy kauri forests, as we and our ancestors have.

Our aim is to significantly ramp up the Programme and we are fortunate to have received the funding that will enable us to do that.

This strategy outlines how we intend to do this and focuses on the following areas:

- > Delivering effective operations.
- > Building knowledge and tools.
- > Engaging and enabling people and communities.
- > Effectively managing the Programme.

By delivering on this strategy we expect to have:

- > a deeper understanding of the disease and how it can be managed;
- > widespread engagement and involvement of mana whenua, communities, industry and the general public in the management of the disease;
- > significantly reduced disease spread rates.

We are humbled and grateful for the assistance and dedication of the many organisations, communities and volunteers who play a critical role in preventing the spread of kauri dieback.

We look forward to strengthening our efforts, and encouraging more New Zealanders to keep kauri standing for this generation and the generations to come.



Dr Erik van Eyndhoven  
Leadership Team Chair  
Kauri Dieback Programme





## Executive summary

**Ko te kauri he whakaruruhau mō te Iwi katoa** – The kauri is a shelter for all peoples

**Kia toi tū he whenua** – So that the land is restored

**Kia toi tū he kauri** – So that the kauri stands proud

This is our vision.

Kauri plays a vital role in New Zealand's culture, history, landscapes and ecosystems. Kauri are among the most spectacular trees in the world and are environment-shapers; exerting a strong influence on the species that live with them, including humans. However, due to exploitation, only a small fraction of the original kauri forests remain.

Kauri forest is critically important to all New Zealanders, but it is also vulnerable and needs our protection.

Kauri dieback is a disease caused by a microscopic, fungus-like organism called *Phytophthora taxon Agathis* (PTA). It infects kauri roots and damages the tissues that carry nutrients and water within the tree, effectively starving it to death. It has the ability to kill kauri of all ages and nearly all infected trees die. There is no known cure.

Kauri dieback has been the focus of a partnership management programme since 2009. This partnership involves tāngata whenua from areas with naturally occurring kauri, Ministry for Primary Industries (MPI), Department of Conservation (DOC), Auckland Council (AC), Northland Regional Council (NRC), Waikato Regional Council (WRC) and Bay of Plenty Regional Council (BOPRC).

Managing the disease has involved:

- > establishing programme management structures and systems;
- > conducting research into the disease and management tools;
- > conducting surveillance to determine the distribution of the disease;

- > encouraging people to clean their footwear, equipment and vehicles to avoid spreading PTA;
- > controlling animals that could spread PTA;
- > reducing the risk of spreading PTA along high-use tracks by installing boardwalks and improving drainage;
- > closing or relocating lower-priority tracks.

The Kauri Dieback Management Programme (the Programme) is now evolving from an establishment phase into a longer-term delivery phase. We will use significant funding increases from all partners to significantly ramp up the work of the Programme and to deliver greater protection for kauri.

This strategy provides a shared vision and overall goal for kauri dieback management over the next 10 years, as well as some more specific goals and actions for the short to medium term. Its purpose is to:

- > identify the key challenges for the Programme and strategies to overcome them;
- > focus efforts on the areas that will bring the biggest gains;
- > serve as a rallying-point for the collective work of the programme partners and those with an active interest in protecting kauri.

Our overall goal for the Programme is that by 2024, the mauri and integrity of kauri forests are sustained in the presence of PTA; we understand the disease; and tāngata whenua, communities and stakeholders are all active in the management of kauri dieback.





We will achieve this by focusing on four key areas:

- > **Delivering effective operations** – ensuring we target our resources at the right scale (for example, landscape, forest or stand), the right sites (regardless of tenure), and the most effective mix of interventions (given the local context).
- > **Building knowledge and tools** – to make us more effective and efficient at managing the disease and its impacts.
- > **Engaging and enabling people and communities** – we can't manage the disease alone, we need help to prevent the spread of kauri dieback.
- > **Effectively managing the Programme** – to be truly successful the Programme will need to maintain a culture focused on continual improvement and collaboration.

The successful delivery of this strategy will:

- > shift the Programme from a reactive to proactive mode and develop forward-looking planning and initiatives to manage the disease based on continuous learning;

- > expand our understanding of the disease and its long-term impacts and build appropriate tools to manage the disease;
- > significantly reduce spread risk through operational (on-the-ground) management of vectors;
- > prioritise the involvement of tāngata whenua and respect for traditional knowledge, innovations and practices;
- > enhance involvement of the wider community;
- > increase the collaboration between partners, and coherence and identity of the Programme;
- > increase the rigour of project management, strategic planning, performance measurement and reporting; and
- > provide greater stability for the Programme over the long-term.

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# Introduction

## THE IMPORTANCE OF KAURI

Kauri plays a vital role in New Zealand's culture, history, landscapes and ecosystems. Partly, this is due to the magnificence of trees such as Tāne Mahuta, which are regarded as some of the largest and oldest in the world. More importantly, it is due to the way kauri has shaped New Zealand's history, our environment and the people within it.

Kauri are considered a keystone species because of their tendency to dominate the forests in which they occur and their ability to change soil conditions. This in turn has a strong influence on other forest species and ecological interactions between them. As a result, kauri forest is clearly distinct from other native forest types and forms an important part of our overall collection of ecosystems within New Zealand and globally.

To Māori, kauri is a taonga tuku iho of the ancestral spiritual world of the Supreme Being, Io Matua Kore, followed through aeons to Ranginui (Father Sky) and

Papatūānuku (Mother Earth), and their child Tāne. A kauri has a tinana, rendered as its body; it is imbued at its birth with its own tapu, meaning its potential to be a remarkable tree. It is the tapu of Tāne that gives to the kauri its primary mana, its authority and status as a rangatira (chief or leader) of the forest. In addition to its spiritual importance, kauri provided a wealth of resources for early northern Māori, including materials, food and medicines, and many of these uses continue today. Mana whenua are entrusted as kaitiaki (guardians) of kauri and their forests.

The influence of kauri on non-Māori is also very significant; kauri is iconic to many New Zealanders and is probably the best known of New Zealand trees. Kauri forest users are many and varied and include day walkers, runners, trampers, cyclists, hunters, artists, scientists, landowners and conservation groups. Kauri is also a major draw card for the northern tourism





industry and has a strong influence on the local economy. A reflection of kauri's importance is its prominence in many motifs, including logos and important bodies of art. Northern forests without kauri would be unthinkable for most New Zealanders.

Aside from its ecological and cultural value, kauri are also renowned for producing high volumes of high quality timber, which is the primary reason vast tracts were felled in the early stages of European colonisation. Kauri gum was also a valuable commodity in the past and was dug out of swamps and bled from living trees. This widespread exploitation had a major economic and cultural influence on New Zealand's early history, bringing wealth and mixing cultures. Kauri had a major influence on New Zealand as an emerging nation.

**Kauri Forest main trunk line - Kauri forest, main trunk line, North Island.**  
Price, William Archer, 1866-1948. Alexander Turnbull Library, Wellington, New Zealand. <http://natlib.govt.nz/records/22830444>

However, one of the consequences of early exploitation was that today less than one percent (7000 ha) of the original kauri forest remains and many of the remaining forests are fragmented and vulnerable to the impacts of pests, weeds, farming and climate change. Encouragingly, kauri is regenerating strongly in many places previously cleared of kauri and these regenerating kauri forests cover an estimated 60 000 ha. Much of this regenerating kauri occurs on private land.

Kauri forest is critically important to New Zealanders, but it is also vulnerable and needs our protection.

### WHAT IS KAURI DIEBACK?

Kauri dieback is a disease that has the ability to kill kauri of all ages and nearly all infected trees die. It can infect single trees or cause dieback of entire stands. There is no known cure, although research is currently being undertaken to develop treatment tools.

This disease is caused by a microscopic, fungus-like organism called *Phytophthora* taxon Agathis (PTA). The name *Phytophthora* means plant destroyer and species within this group are responsible for some high profile diseases worldwide; most notably potato blight, caused by *Phytophthora infestans*, which has annual global costs of \$6 billion USD and was the proximate cause for the Irish Potato Famine.





PTA infects kauri roots and damages the tissues that carry nutrients and water within the tree, effectively starving it to death. Symptoms include yellowing foliage, canopy thinning, appearance of dead branches and tree death. Affected trees frequently show bleeding lesions on the lower trunk extending down the major roots.

PTA is a new-to-science organism and our understanding of it and management methods is still reasonably limited. However, we do know that PTA is spread through movement of contaminated plant material, soil or water.

Research to date indicates that PTA has been in New Zealand since the 1950s, but it was not formally identified until 2008. The disease has since been found in parts of the Northland, Auckland and Waikato regions, but it has a highly patchy distribution and hasn't been detected in some large areas.

There is a clear opportunity to reduce spread of the disease into new areas.

If left unmanaged, the disease has the potential to kill all kauri, which would dramatically alter our nation's northern forest ecosystems forever.

New Zealand is not alone when it comes to dealing with dieback in natural forests. *Phytophthora* dieback, caused by *Phytophthora cinnamomi*, is dramatically altering ecosystems in Australian bushland. Sudden Oak Death, caused by *Phytophthora ramorum*, is causing widespread death of oak and other species in North America and Europe. Chestnut blight, caused by *Cryphonectria parasitica* (a fungus), has virtually wiped out chestnut from North American forests since the early 1900s.

These examples provide us with an opportunity to learn from others' experience and to adapt these lessons to our unique context.





## MANAGING THE DISEASE

Kauri dieback has been the focus of a partnership management programme since 2009. This partnership involves tāngata whenua from areas with naturally occurring kauri, Ministry for Primary Industries (MPI), Department of Conservation (DOC), Auckland Council (AC), Northland Regional Council (NRC), Waikato Regional Council (WRC) and Bay of Plenty Regional Council (BOPRC). The Programme is underpinned by a charter, which outlines the roles and responsibilities of the partners, what resources they bring to the table and how they intend to work together.

Programme resourcing relies on funding by central and local government and in-kind support from tāngata whenua and other parties.

The Programme's key aim has been on reducing the incidence or spread of the disease.

The emergence of any disease involves the interaction between the pathogen (in this case PTA), the host (in this case kauri) and the environment (the conditions experienced by the pathogen and the host). All three factors have an influence over whether a disease occurs or not, so disease management approaches traditionally involve:

- > preventing the pathogen coming in contact with the host;

- > improving the host's ability to fight off the pathogen once it comes into contact with it;
- > modifying the environment to favour the host and hinder the pathogen.

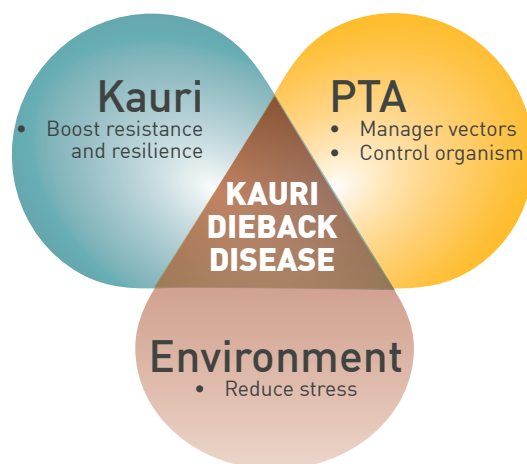
Using this framework, managing kauri dieback can involve any combination of the following actions (see Figure 1):

- > controlling the organism by managing vectors (humans/animals) that may spread PTA;
- > building the resistance of kauri to infection;
- > reducing environmental stresses that may weaken kauri.

The first five years of the Programme involved:

- > establishing management structures and systems;
- > commissioning short-term research (such as developing diagnostic tools for surveillance, hygiene measures to prevent the spread, and initiating control tool trials);
- > rolling out hygiene stations at high use forest tracks;
- > designing and implementing a behavioural change programme targeting forest users; and
- > developing community engagement and support for managing forests.

Figure 1: Kauri dieback disease triangle



The Programme is now evolving into a longer-term delivery phase. We have adapted as our knowledge and understanding of the disease has increased.

More recent focus has been on:

- > controlling the animals/organisms that can spread the disease (called vector control);
- > upgrading high use forest tracks to reduce risk (for example, installing boardwalks and improving drainage);
- > closing or relocating lower-priority tracks;
- > completing surveillance;
- > engaging with communities;
- > implementing research findings; and
- > scoping longer-term research.

An independent review of the Programme undertaken in October 2013<sup>1</sup> concluded that progress has been impressive, considering the difficulties posed by the

disease, and the challenges involved in setting up a partnership approach for managing the disease. The review also recognised the scale of the challenge and recommended that the Programme increase its efforts in a number of areas including:

- > creating a stronger national approach to managing kauri dieback;
- > increasing resources and applying them effectively in the right areas; and
- > inspiring and enabling all New Zealanders to become involved in helping kauri.

Views expressed by the programme partners and the independent review suggest that wholesale change within the Programme is not desirable. Instead, the programme partners are committed to making changes that enable the Programme to run more effectively. This work will be guided by this strategy.

At the conclusion of the first funding phase of the Programme (2009–2014), the partners acknowledged the need to increase efforts by committing significantly more resources. This provides us with an

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<sup>1</sup> Independent Quality Assurance New Zealand (IQANZ) (17 October 2013) *Kauri Dieback Programme: Independent review of the programme and recommendations for its next phase*. [http://www.kauridieback.co.nz/media/37113/kauri%20dieback\\_iqanz%20report%20-%20final%2017oct2013%20v1.2%20pdf.pdf](http://www.kauridieback.co.nz/media/37113/kauri%20dieback_iqanz%20report%20-%20final%2017oct2013%20v1.2%20pdf.pdf)



opportunity to ramp the Programme up to a new level and provide a greater degree of protection for kauri.

### **PURPOSE OF THE STRATEGY**

This strategy builds on our record of progress over the past five years and aims to take the Programme to a new level. It provides a shared vision and overall goal for kauri dieback management over the next 10 years, as well as some more specific goals and actions for the short to medium term. Its purpose is to:

- > identify the key challenges for the Programme and strategies to overcome them;
- > focus efforts on the areas that will bring the biggest gains; and
- > serve as a rallying-point for the collective work of the programme partners and those with an active interest in protecting kauri.

There is still much to learn about the disease and our opportunities to manage it, so there is not a lot to be gained by prescribing actions for the long-term. Therefore, the strategy actions are focused on the short- to medium-term and the strategy will be reviewed every three years. A commitment to performance measurement and regular reviews will enable the Programme to apply new knowledge as it develops and, ultimately, become more adaptive.

The strategy does not detail the tasks, timelines and accountabilities for actions; these will be determined in the Operational Plan.

Partnership and engagement with tāngata whenua provides the foundation for this strategy.



# Vision, outcomes and goals for managing kauri dieback

## VISION AND OVERALL GOAL OF THE PROGRAMME

**Ko te kauri he whakaruruhau mō te Iwi katoa** –

The kauri is a shelter for all peoples

**Kia toi tū he whenua** – So that the land is restored

**Kia toi tū he kauri** – So that the kauri stands proud

By 2024, the mauri and integrity of kauri forests are sustained in the presence of PTA; we understand the disease; and tāngata whenua, communities and stakeholders are all active in the management of kauri dieback.

## KAURI DIEBACK MANAGEMENT OUTCOMES

The outcomes sought by managing kauri dieback include:

- > maintaining currently kauri dieback-free areas;
- > significantly reducing the spread of kauri dieback;
- > significantly reducing the impact of kauri dieback within infected sites;
- > protecting iconic individual kauri trees and stands from PTA;
- > maintaining effective working relationships between the Crown, tāngata whenua and regional authorities, and increasing public participation in the management of kauri dieback.



## HOW THE PROGRAMME ALIGNS WITH NEW ZEALAND'S NATIONAL PEST MANAGEMENT OUTCOMES

The Pest Management National Plan of Action 2010–2035 identifies the key changes to ensure pest management systems in New Zealand are “fit for purpose” for the next 25 years.

The desired outcomes of the Kauri Dieback Programme support the national pest management outcomes. This relationship is shown in the table below.

**Table 1: Linkages between national pest management outcomes and kauri dieback management outcomes**

<b>Whole of New Zealand outcomes that biosecurity contributes to along with other inputs</b>	<b>Economic strength</b>	<b>Healthy environment</b>	<b>Healthy New Zealanders</b>	<b>Cultural identity</b>				
	<ul style="list-style-type: none"> <li>Increased trade and market access for our products.</li> <li>Economic opportunities, growth and prosperity are maintained and enhanced.</li> </ul>	<ul style="list-style-type: none"> <li>Our natural and historical heritage, the integrity of ecosystems and the character of New Zealand landscapes are protected and enhanced.</li> </ul>	<ul style="list-style-type: none"> <li>Human health and wellbeing are optimised.</li> <li>Healthy and rewarding lifestyles, freedom and respect for cultural expression, and enjoyment of the recreational value of the natural environment.</li> </ul>	<ul style="list-style-type: none"> <li>Protection of Māori biologically based economic and cultural resources – the relationship of Māori and their culture and traditions with their ancestral lands, waters, sites, wāhi tapu and taonga is maintained and enhanced.</li> </ul>				
<b>Overall pest management outcomes</b>	<b>Pest management</b> – unwanted damage caused by harmful organisms that have established in New Zealand is prevented or reduced							
<b>Pest management intermediate outcomes</b>	<p><b>Preventing establishment</b> – potentially harmful organisms present in New Zealand have not become pests.</p>	<p><b>Reducing spread on pathways</b> – the spread of harmful organisms is reduced on domestic pathways</p>	<p><b>Eliminating or rolling back</b> – harmful organisms are eliminated or their distribution is reduced over time</p>	<p><b>Controlling the harmful organism</b> – the density of harmful organisms is maintained at a level where the impacts are manageable</p>	<p><b>Protecting values in places</b> – the damage caused by harmful organisms in places is reduced or prevented</p>	<p><b>Awareness</b> – improved understanding by all New Zealanders of biosecurity risks and management activities</p>	<p><b>Participation</b> – increased participation by all New Zealanders in pest management activities</p>	<p><b>Support</b> – support and tolerance for pest management programmes and tools increases</p>
<b>Kauri dieback outcomes</b>	Maintaining currently PTA-free areas	The spread of PTA is significantly reduced	[not considered currently feasible]	The impact of kauri dieback within infested sites is significantly reduced	Protecting iconic individual kauri trees and stands from PTA	Maintaining effective working relationships between the Crown, tāngata whenua and regional authorities, and increasing public participation in the management of kauri dieback		



## What we will achieve over the next 10 years

Managing the disease requires a multi-dimensional approach which we have condensed into four key goals:

- > Delivering effective operations.
- > Building knowledge and tools.
- > Engaging and enabling people and communities.
- > Effectively managing the Programme.

These goals are naturally interrelated. For example, better tools and knowledge, effective management and engaged

communities will help us deliver more effective operations. As such, achievement of these goals will require a high degree of coordination across the Programme.

For each goal we've agreed a number of objectives and actions that will enable us to work towards the overall goal of the Programme. A glossary explaining the terms used in this strategy is included in the Appendix.

## Goal One: Delivering effective operations

Our toolkit for managing kauri dieback is currently limited and Goal Two seeks to address this, but there is a range of actions we can take to reduce the risk of PTA spreading. We have to act now with the tools that we have.

We need to be consistent in our approach to management across all kauri land. At the same time, given our limitations in resources (people and funding) we need to prioritise how, when and where resources are used to prevent the disease spreading. Once we have decided where we will work, we need to decide which resources to use, based on the specific factors for each site. These factors can include the level or spread of infection, type of land the kauri is on, how the land is used, what vectors are present and so on. As there is no single response or intervention that works for all areas and vectors, this means there is

a need for local and regional community engagement and empowerment to ensure risks are fully identified and managed for each unique situation.

We need to more proactively guide decisions on these matters. More specifically our challenges are to:

- > target our resources at the right scale for the problem we are trying to solve;
- > target our resources to the highest priority sites (these can be regions, specific areas or individual trees or stands of trees);
- > decide on the most effective mix of interventions to suit a variety of sites; and
- > ensure that interventions on private land, including Māori-owned land, are prioritised and landowners are educated, supported and empowered.

**SAVE OUR KAURI FORESTS**  
They are dying from kauri dieback disease

It spreads by soil movement  
**ACT NOW** to help stop it

**ALWAYS**

**CLEAN YOUR GEAR**  
Remove soil before AND after forest visits -  
clean your shoes, tyres and equipment

**STAY ON THE TRACK**  
AND off kauri roots

WWW.KAURIDIEBACK.CO.NZ

**KEEP KAURI STANDING**  
KIA TOITU HE KAURI



## We will deliver effective operations by:

### Working at the right scale

**Action:** Determine:

- which activities (for example, risk assessment, surveillance planning, site prioritisation) require the scale (national to local) to be pre-determined (as opposed to ad-hoc);
- the most effective and efficient scale to work at for these activities;
- the necessary processes to ensure work is delivered, based on these scales.

Expected benefits include:

- we use the right resources when and where they are needed;
- our interventions are “fit for purpose”.

### Prioritising work and optimising interventions

**Action:** Develop a decision-making framework for:

- identifying priority management sites (for example, forests, stands of trees, catchments) at different scales;
- guiding decisions on adaptive management activities (for example, cleaning stations, track closures and vector controls) for priority sites while maintaining flexibility to respond to local constraints and opportunities.

Expected benefits include:

- targeted interventions that have the most impact;
- decisions that are robust, consistent and lead to the best solutions.

### Planning operations on private land (including Māori-owned land)

**Action:** Develop mechanisms to support operational interventions on high priority private land.

Expected benefits include:

- work can occur where it is most needed, irrespective of tenure.



## Goal Two: Building knowledge and tools

Acquiring a high level of knowledge and developing tools to manage kauri dieback are essential for the success of the Programme. PTA is still considered a new-to-science organism and there is much we are yet to learn. We need to better understand the disease, predict how it will affect ecosystems, know where it is (and isn't), know how to control or prevent it, and know how to build resilience in the presence of PTA.

The Programme aims to develop new tools and knowledge that assist with management across landscapes, understanding vectors, understanding the

disease and assessing the performance of interventions. The Programme is also committed to information-sharing for the benefit of others with aligned interests.

Our key focus areas are:

- > sharing and aligning mātauranga Māori, accessing the best advice and guidance and prioritising knowledge gaps;
- > improving our understanding of disease distribution;
- > building or improving our tools for managing the disease; and
- > better use of regulatory tools.



## We will build knowledge and tools by:

### Sharing and aligning mātauranga Māori, accessing the best advice and guidance, and prioritising knowledge gaps

**Action:** Develop a science and mātauranga Māori plan that identifies:

- how mātauranga Māori research, tools and monitoring will be implemented;
- priority knowledge gaps that need to be addressed;
- how advice from experts will be obtained and utilised;
- arrangements to provide assurance and demonstrate that scientific evidence and analysis are sought, obtained, interpreted, used and communicated appropriately within the Programme (that is, science governance arrangements).

Expected benefits include:

- greater confidence that we are harnessing the right advice and that our decision-making is founded in robust scientific and cultural knowledge;
- enhanced knowledge of how to manage kauri dieback;
- knowledge gained from and used by those who are kaitiaki of kauri and kauri forests.

### Improving our understanding of the disease distribution

**Action:** Significantly improve our knowledge of:

- kauri distribution;
- disease status across all areas with naturally occurring kauri.

Expected benefits include:

- potential identification of new infected sites and identification of areas of infection within larger blocks of forest;
- better targeting of operational resources.

### Building our knowledge and improving our tools for managing the disease

**Action:** Focus research effort on:

- expanding our knowledge of the disease and its impacts;
- building/proving new tools;
- increasing the efficiency and effectiveness of existing tools;
- exploring opportunities to increase the resilience of forests to kauri dieback;
- identifying and understanding disease resistance within the kauri population;
- finding ways to manage a broader range of high-risk vectors that spread the disease.

Expected benefits include:

- more effective reduction of spread to new sites;
- better targeting of resources (that is, to the greatest risk areas);
- expansion of the sites that can be managed (through efficiency gains);
- increased surveillance coverage (through cost reductions per sample);
- increased public compliance rates with hygiene infrastructure;
- greater resilience of kauri.

### Understanding behaviour change

**Action:** Undertake research to understand how we can better influence behaviour across a range of audiences.

Expected benefits include:

- more targeted and effective communications and engagement activities.

### Better use of regulatory tools

**Action:** Assess regulatory tools available and investigate how these tools can be used to support the overall goal of the Programme.

Expected benefits include:

- more effective incentives for spread risk reduction;
- risk reduction on high priority pathways.

## Goal Three: Engaging and enabling people and communities

Kauri dieback disease is a socio-scientific problem. Human activity is identified as being the single biggest risk factor to disease spread. Science, expert knowledge and mātauranga Māori are essential, but to manage the disease we need to engage people and encourage them to help prevent the spread of kauri dieback.

Visitors cleaning their gear before and after visiting kauri forests, hunters telling us about potentially sick trees they have seen, land owners and mana whenua carrying out soil sampling, contractors cleaning their earthmoving equipment,

land owners fencing off infected or at-risk sites, and long-term forest health monitoring are just a few ways we need people to help the Programme prevent the spread of this disease.

By engaging and enabling larger numbers of people to understand kauri dieback, and what actions they can take, we will access the passion, commitment, local knowledge and skills of the New Zealand public and tāngata whenua, which will increase the chances to keep kauri standing.



## We will engage people and communities by:

### Encouraging behaviour change

**Action:** Implement research-based initiatives that influence behaviour across a range of audiences.

Expected benefits include:

- increased awareness of the disease and increased enthusiasm for the need to act now;
- increased behaviour change in target audiences that supports the protection of kauri (e.g. increased use of hygiene measures across all kauri forest users).

### Communicating consistently and proactively across the Programme

**Action:**

- Review our national communications plan covering all target audiences, including developing channels to share information, achieve continual improvement and establish best practice across the Programme.
- Develop our forest user database and its flexibility to ensure we are communicating most effectively with each community of interest.

Expected benefits include:

- clear, effective and consistent communications and messages about kauri dieback and the Programme at a national level that supports local plans/initiatives;
- targeted communications to specific audiences, prioritised by risk factor, to ensure uptake of best practices for kauri protection.

### Building long-term relationships

**Action:** Develop strategies, tools and mechanisms to support the efficient management of relationships, including systems that can record and target agency, community and individual interactions.

Expected benefits include:

- targeted and meaningful engagement with agencies, tāngata whenua, communities and individuals;
- enable feedback/information to be more easily shared across the Programme;
- feedback used as the basis for continual improvements across all areas of the Programme;
- communities are increasingly educated and empowered for the protection of kauri;
- relationships are formed and nurtured with other organisations that have an interest in kauri – this will include contracts, agreements and memoranda of understanding, as necessary.



## Goal Four: Managing the Programme

The way the Programme is managed has a major influence on the overall effectiveness of our work.

The Programme has settled into a structure that has served it well over the last five years. However, the changes signalled by this strategy warrant another look at the structure to determine if it is still fit for purpose.

To be truly successful the Programme will need to maintain a culture focused on continual improvement and collaboration. We need a Programme that is agile, and

able to quickly determine when things aren't working and change accordingly. This will need to be underpinned by practical and effective systems and processes, and a commitment to good internal (between programme partners) communications.

At the same time, the Programme needs to work in a complementary way alongside other initiatives that are established to address related problems or serve local communities.



## We will effectively manage the Programme by:

### Exploring alternative structures

**Action:** Review the current governance structure and investigate other options that might better support the efficient and effective operation of the Programme.

Expected benefits include:

- utilising a structure that provides greatest stability over the long term;
- increased confidence by stakeholders that the Programme is fit for purpose;
- timely, consistent and balanced decisions;
- enhanced accountability and governance.

### Lifting standards and continually improving

**Action:** Create a tightly focused schedule of activities, such as management tools, standard operating procedures (SOPs) and decision-making tools, based on best practice and underpinning research.

Expected benefits include:

- a clearer plan and process for capturing learnings and embedding improvements;
- ensuring consistent decision-making.

**Action:** Identify and refine the key best practice through regular reviews and apply this to all areas of the Programme.

Expected benefits include:

- standards are lifted across the Programme.

**Action:** Develop and implement a Capability Building Plan for the Programme involving partners and external organisations.

Expected benefits include:

- we are able to raise standards and improve capability across the Programme.

### Improving coordination across the Programme and with other parties

**Action:** Investigate and implement systems that ensure work streams across the Programme are aligned, cooperating and achieving synergies, and that the Programme can collaborate effectively with other parties with an aligned interest in protecting kauri.

Expected benefits include:

- increased effectiveness and efficiency of the Programme through reduced gaps and overlaps between work streams and greater capture of collective expertise;
- greater integration of work across the Programme and with external parties.

### Monitoring our progress

**Action:** Develop a plan for the ongoing monitoring, evaluating and auditing of the Programme's performance.

Expected benefits include:

- progress of the Programme is well tracked against its goals and outcomes;
- greater transparency and accountability to all partners and supporters.



## Implementation

The goals, objectives and actions of this strategy will be championed by the Kauri Dieback Programme Leadership Team and implemented by all programme partners. However, this strategy recognises that the Programme cannot solve this problem alone and will require the help of other organisations and individuals in our community who are dedicated to saving kauri.

### OPERATIONAL PLAN

Implementation of the strategy will be guided by the Operational Plan, which will specify tasks, milestones, resources, accountabilities and performance measures for a three-year planning window. This will be reviewed annually. The Operational Plan will require more detailed plans to be produced, which are likely to include:

- > performance measurement;
- > science and mātauranga Māori;
- > engagement and communications;
- > capability development; and
- > surveillance.

### RESOURCING

To give effect to this strategy, the Programme needs to prioritise the allocation of resources across the goals. Figure 2 provides an indicative breakdown of the funding of the Programme in previous and current funding phases. This indicates an overall increase in funding and a concentration of resources towards operational management, which is strongly influenced by the allocation of \$21.6 million in Budget 2014 for improvement of tracks and establishment

of cleaning stations on DOC-administered land for the next four years (ending June 2018). It also indicates that investing in building knowledge and tools is currently our second highest priority. This resource allocation is not fixed and will change over the course of the next 10 years in response to new knowledge, efficiency gains, completion of capital works and competing partner priorities.

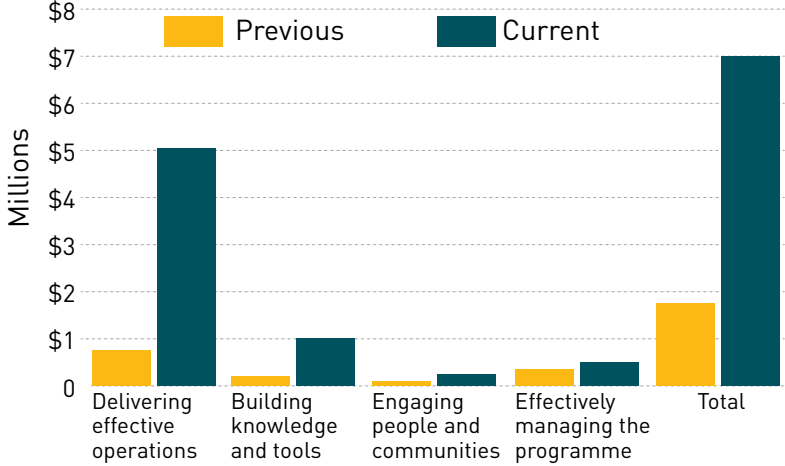
### WHAT SUCCESS LOOKS LIKE

In delivering this strategy we will:

- > shift the Programme from a reactive to proactive mode and develop forward-looking planning and initiatives to manage the disease based on continuous learning;
- > expand our understanding of the disease and its long-term impacts and build appropriate tools to manage the disease;
- > significantly reduce spread risk through operational (on-the-ground) management of vectors;
- > prioritise the involvement of tāngata whenua and respect for traditional knowledge, innovations and practices;
- > enhance involvement of the wider community;
- > increase the collaboration between partners, and the coherence and identity of the Programme;
- > increase the rigour of project management, strategic planning, performance measurement and reporting; and
- > provide greater stability for the Programme over the long-term.



Figure 2: Proposed partnership resourcing (average per annum costs, not including staff time) across key strategic goals between the previous and current funding phases. This graphic is provided for illustrative purposes only and budget allocations are subject to change through the operational planning process.



## Appendix – Glossary

The following terms and Māori words and phrases are used this document. Māori words are translated as closely as possible into English:

Hapū	A division of Māori people or community. Membership determined by genealogical descent; a hapū comprises a number of whānau (extended family) groups.
Host	An animal or plant on or in which a parasite or organism lives.
Iwi	Extended family group, tribe, nation, race, or group of people descended from a common ancestor.
Mana	Prestige, authority, control, power, influence, status or spiritual power.
Mana whenua	Authority over land or territory.
Māori land	As defined by the Te Ture Whenua Māori Act 1993, includes Māori customary land and Māori freehold land.
Mātauranga Māori	Traditional and contemporary Māori knowledge and knowledge bases. This includes the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices. As an organic and living knowledge base, mātauranga Māori is ever growing and expanding.
Mauri	Life principle, vital essence – the essential quality and vitality of a being or entity.
Pathogen	A bacterium, virus or other microorganism that can cause disease.
Pest	An organism that has characteristics that are regarded by people as injurious or unwanted [from Pest Management Plan of Action].
PTA	<i>Phytophthora</i> taxon <i>Agathis</i> . A microorganism that is the causal agent of kauri dieback disease.
Rangatira	A Māori chief or noble.
Tāne Mahuta	Tāne Mahuta is a giant kauri tree ( <i>Agathis australis</i> ) located in the Northland region of New Zealand.
Tāngata whenua	Literally “people of the land”. Māori and their whānau, marae, hapū and iwi, or genealogical connections, back to the land by virtue of first or primary occupation of the land by ancestor(s) through a variety of mechanisms such as maintaining ahi-kā-roa (long-term occupation) or conquest.
Taonga	Treasure.
Taonga tuku iho	Heirloom, something handed down.
Tapu	Sacred, forbidden, taboo.
Tinana	Physical form.
Tools	Includes physical control tools, like hygiene stations and chemical treatments, monitoring tools and best practice approaches and standards.
Vector	An organism or agent that transmits a disease or parasite from one animal or plant to another.
Whānau	Family group, extended family.
Wāhi tapu	Sacred place – a place subject to long-term ritual restrictions on access or use, e.g. a burial ground, a battle site or a place where tapu objects were placed.



The Programme thanks the following organisations for their ongoing support in keeping kauri standing.



TĀNGATA WHENUA



Ministry for Primary Industries  
Manatū Ahu Matua



## **KAURI DIEBACK PROGRAMME**

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