

National (*Phytophthora agathidicida*) Pest Management Plan proposal

Proposal to meet requirements of Section 61 of the Biosecurity Act

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1. Introduction

This document is a proposal by the Kauri Protection Governance Group to establish a National *Phytophthora agathidicida* (Pa) Pest Management Plan (NPMP) under the Biosecurity Act 1993, to meet the requirements under Section 61 of that act.

At the heart of the proposal is the Treaty of Waitangi/ Te Tiriti o Waitangi partnership between the Crown and Māori. This partnership will be incorporated in new management agency arrangements, including how decision-making and resource allocation will work at all levels of the programme.

This proposed plan supports a locally implemented approach. It aims to unite and enable efforts of hapū/iwi, agencies, local communities, industry and business, and other non-governmental organisations to take action. And it provides for appropriate consistency and a coordinated approach to management.

The NPMP will be the primary regulatory tool to enable implementation of a new Kauri Protection Strategy and sits within a broader toolbox that includes voluntary tools and some other regulatory tools (e.g., conservation legislation, RMA).

2. The name of the person making the proposal [s.61(2)(a)]

This proposal is made by the Kauri Protection Governance Group.

This proposal is based on the proposal made by the Kauri Dieback Governance Group (KDGG) submitted to the Minister for Biosecurity in 2019. The KDGG was formed in 2009 and provided strategic oversight and leadership for the kauri programme. The programme is a partnership with Biosecurity New Zealand (part of MPI), Department of Conservation, Auckland Council, Waikato Regional Council, Northland Regional Council, Bay of Plenty Regional Council, Te Roroa (tangata whenua for Waipoua Forest), and Tangata Whenua Roopu (representative body for hapū/iwi with an interest in kauri lands). Biosecurity New Zealand provides overall coordination of the programme on behalf of the partners.

Members of the KDGG when the proposal was submitted to the Minister in 2019 were:

- Roger Smith (Ministry for Primary Industries)
- Mike Slater (Department of Conservation)
- Phil Brown (Auckland Council)
- Mace Ward (Auckland Council)
- Taoho Patuawa (Te Roroa)
- Patrick Whaley (Waikato Regional Council, Bay of Plenty Regional Council)
- Don McKenzie (Northland Regional Council)
- Waitangi Wood (Tangata Whenua Roopu)
- Hori Parata (Tangata Whenua Roopu)

The KDGG was disbanded in July 2021 to allow for the establishment of the Kauri Protection Governance Group (KPGG). The Kauri Dieback Programme has continued but under the banner of the Kauri Protection Programme.

The KPGG co-Chairs are:

- Hūhana Lyndon (Māori co-Chair) (interim)
- Mike Slater (Crown co-Chair)

Contact details for the present co-Chairs, who are submitting this amended proposal on behalf of the Kauri Protection Governance Group, are:

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3. The subject of the proposal [s.61(2)(b)]

The organism *Phytophthora agathidicida* (Pa) is proposed as the pest to be managed in accordance with the NPMP. Where Pa means ‘the primary causal agent of kauri disease, known as *Phytophthora agathidicida*’.

Pa (formally named in 2015, previously it was known as *Phytophthora taxon Agathis*) was first associated with kauri disease symptoms in 2009. Its origin is unknown but is believed to have been introduced into New Zealand sometime within the last few hundred years.

Multiple life stages of Pa exist, including:

- Oospores, the main long-term survival structures of Pa. Oospores are formed within infected kauri tissues, and are released into the soil as these tissues break down.
- Sporangia, which are formed from oospores in moist soil conditions and these release motile zoospores in wet conditions.
- Zoospores, which swim through soil water towards kauri roots, but the distance of this movement will generally only be a few millimetres or centimetres.

Pa is highly pathogenic on kauri, and trees of all ages can be infected and killed. Pa symptoms on kauri include:

- Yellowing of leaves - kauri tree leaves turn yellow as the disease takes effect.
- Bleeding gum - basal trunk lesions.
- Thinning canopy - given the disease strangles kauri by preventing the movement of water and nutrients throughout the tree, the canopy eventually is reduced or thins out over time.
- Dead branches - dead kauri trees and trees showing severe symptoms such as a thin canopy and dead branches.
- Death - the last stage is death of the tree itself where there is no canopy of the tree. Most trees infected will eventually die.

To date, kauri is the only tree known to be susceptible to Pa in the field. However, it is likely that there are many other native and exotic plants that can be colonised by Pa, harbouring or proliferating the pathogen without necessarily showing symptoms (symptomless hosts).

There is no known cure for kauri disease at this time, and the pathogen kills most if not all the kauri it infects. It is likely that genetic variation in susceptibility is present within kauri germplasm, but genuine resistance has not yet been found.

Pa is a soil-borne pathogen, with no airborne phase. It can be spread by just a pinhead of soil. Vectors potentially include anything that moves soil or plant material. Infected soil and spore movement could be passive (such as in water run-off downhill from infected sites), or active (such as in movement of soil on trampers' boots, vehicles, machinery, tools, feral animals such as pigs, domestic animals such as cattle, and movement of infected nursery material). The relative importance of these various pathways will be proportional to the volume of soil moved and the frequency and distance of such movement. The majority of long-distance dispersal is via human activity.

A full summary of technical knowledge and assumptions about kauri disease and Pa is provided in **Appendix 1**.

4. A description of its adverse effects [s.61(2)(c)(i)]

Pa damages a kauri tree's root system, reducing the tree's ability to take water and nutrients from the soil and transport it throughout the plant.

The pathogen produces a definite but not unique symptomology. Initial signs of infection can be yellowing of the leaves; eventually branches starve and die before the whole tree succumbs. Trunk lesions can also occur, although not all infected trees show these.

It can take years for symptoms to appear, there is an unknown latency period. Seedlings may show symptoms within weeks of being infected. In juvenile trees, it may take a few years or more for symptoms to appear, and even longer in mature trees, possibly decades.

Though these symptoms assist with identification of potentially infected trees, it is often hard to tell if a tree is infected by looking at the tree itself. Similar symptoms may occur for other reasons like drought or age. Ultimately, the disease can be difficult to detect.

Although knowledge of how kauri are infected is sound, the level of severity (or virulence) and latency of the disease in kauri is less well understood. Scientists do not know exactly what factors enable the pathogen to cause disease symptoms in some trees more quickly than others. It is likely environmental conditions, such as temperature and soil moisture, play a critical role in the speed of the infection process.

Although it is clear Pa has significant impact on kauri, scientists are still trying to determine the long-term impacts on kauri and kauri forests.

As a keystone species, kauri play an important role in the type of flora that resides in a kauri forest. Many plants have evolved to live on and around kauri due to the type of soil that is developed over

time. Without kauri, the ecosystem is likely to be very different. There has been research looking at the long-term impacts of the disease and determining the ecological composition around healthy and diseased kauri, however a lot more research is required.

A description of current technical knowledge and assumptions based on science and Mātauranga Māori¹ understanding is provided in **Appendix 1**.

5. The reasons for proposing a plan [s.61(2)(c)(ii)]

Individual and group action(s) can assist the control of Pa; including minimising its' spread within and between kauri forests. Effective management of disease requires concerted action from a range of individuals, community groups, hapū/iwi, industry, scientists and Mātauranga Māori experts, educators, and central and local government agencies. This requires a uniting goal and coordination at a national level.

Further, an independent review of the programme² recommended 'a nationally consistent approach is required' and that 'a national or pan-regional pest management strategy' be prepared. A subsequent investigation of regulatory options³ recommended a 'National Pest Management Plan' be developed as the primary regulatory tool for the programme.

Both the independent review and subsequent investigation identified an 'over-reliance on voluntary compliance' as a key problem needing to be addressed, in order to strengthen management.

In addition to the stronger focus on regulation and rules needed, there is strong agreement that utilising a broader suite of compliance tools is essential. Utilising the right incentives/interventions is integral to achieving desired behaviours to minimise spread.

An NPMP is preferred over multiple regional pest management plans or a pan-regional pest management plan because the decision to approve the plan sits at the appropriate level for a nationally significant programme; with a Minister, rather than with multiple regional councils. A consistent regional/pan-regional model would rely upon councillors across the four relevant regional councils agreeing to include consistent rules across regions. It would then rely upon subsequent councils over successive political cycles to agree to retain these/maintain consistency. This model also creates duplication and is less efficient.

Consistent with the above, the reasons for proposing this plan are to:

- establish clear national objectives and a nationally coordinated and consistent approach to managing the risk of Pa to New Zealand's kauri forests, culture, our communities and economy;

¹ Mātauranga Māori is the knowledge, comprehension or understanding of everything tangible or intangible [such as spiritual and metaphysical values] that exists across the universe from a Māori perspective. In relation to kauri dieback it takes many forms including karakia, whakapapa, Mātauranga (traditional environmental knowledge) and knowledge of cultural practises, such as cultural harvest, rongoā (healing and medicines) and rāhui (a form of tapu restricting access to, or use of, an area or resource).

² IQANZ (2013). *Kauri Dieback Programme: Independent review of the programme and recommendations for its next phase*. 17 October 2013

³ Harrison (2016). *Scoping regulatory support for the Kauri Dieback Programme. Report prepared for the Kauri Dieback Leadership Team*. December 2015.

- give access to powers under the Biosecurity Act to require specific actions of people that use, or come into contact with kauri trees and forests;
- provide for appropriate distribution of costs; and
- secure funding for implementation over the initial five year period of the 10-year proposed plan.

6. Providing for the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga [s.61(2)(c)(x)]

It is recognised that kauri disease is an issue of immense weight and significance to Māori. As such, the aspiration of the kauri programme to have a partnership of co-design, co-governance will be continued. It is also acknowledged that in many instances Māori-leadership and policy have, and will continue to deliver, the best protection for kauri and the best chance to combat and remove the threat of kauri disease.

In order to recognise and respect the Crown's responsibility to all Māori, and to protect the interests of all Māori who have interests in kauri, delivery by the management agency of the plan objectives and measures, and the implementation of the plan rules, powers and standards, must give effect to the articles and principles of the Treaty of Waitangi/ Te Tiriti o Waitangi

Recognising the Crown's responsibilities, the proposed plan, and supporting strategy are a partnership in which the management agency and hapū/iwi have a positive duty to act in good faith, fairly, reasonably and honourably⁴. The starting point of this partnership is a shared responsibility for the protection of kauri, which gives due autonomy to hapū/iwi and provides for substantive expression of rangatiratanga⁵. It is also grounded in a positive duty to protect Māori property interests and taonga⁶.

The governance and the constitution (if one is required) of the management agency will reflect and embed the responsibilities of partnership and protection, and cultural competence will be expected of its senior officials.

Management agency operational plans, including regional plans and arrangements, management unit plans, forest plans and risk plans etc, will ensure Treaty/Tiriti due diligence to establish the nature of any Treaty/Tiriti right or interest. This will necessarily entail an audit of relevant legislation (particularly settlement legislation), deed documents, and relationship documents. This step is ordinarily straight forward where the right is clearly defined, but it is more complicated where the right is undefined or not agreed⁷, or where settlement has not been agreed. This is particularly so where a lack of cultural understanding is combined with a vague or contentious right or interest. It

⁴ See: the *Lands* case; *New Zealand Māori Council v Attorney-General* (the *Broadcasting Assets* case) [1994] 1 NZLR 513 (PC); *Te Runanga o Te Wharekauri Rekohu v Attorney-General* [1993] 2 NZLR 301 (CA).

⁵ Framed in *Ko Aotearoa Tenei* (the Wai 262 Report).

⁶ *Lands* at 664

⁷ For example, rights and interests in freshwater or claims to preferential treatment in relation to concessions under the Conservation Act 1987. See also *Ngāi Tahu Māori Trust Board v Director General of Conservation* [1995] 3 NZLR 553 (*Whales Case*).

can also result in a critical misstep when a mono-cultural lens dominates and the due diligence is shallow or ill-informed. As the Waitangi Tribunal observed in *Ko Aotearoa Tenei*:⁸

What we saw and heard in sittings over many years left us in no doubt unless it is accepted that New Zealand has two founding cultures, not one; unless Māori culture and identity are valued in everything government says and does, and unless they are welcomed into the very centre of the way we do things in this country, nothing will change.

The management agency will conduct periodic audits every three years of its plans and arrangements against Treaty/Tiriti due diligence, noting areas for improvement in current plans and updating existing plans to ensure consistency with changes in relevant legislation, deed documents and relationship documents. The audits themselves should also take a partnership approach and have regard to The Cabinet Office circular CO (19) 5 Te Tiriti o Waitangi/Treaty of Waitangi Guidance.

7. The objectives that the plan would have [s.61(2)(c)(iii)]

The following is the proposed objective: To reduce the harmful effects of *Phytophthora agathidicida* (Pa) on the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga, and to protect our kauri forests for the economic wellbeing, the environment, human health, and enjoyment of the natural environment for the benefit of all New Zealanders. This will be achieved by reducing the spread of Pa, maintaining areas that are free of Pa, reducing the impact of Pa within infected sites, locally eliminating Pa within infected sites, protecting kauri with special value from Pa, and facilitating controlled access to kauri forests where it does not compromise the future of and/or protection of kauri.

The following are the proposed pest management intermediate outcomes:

Pest management intermediate outcome:	Sustained control
Geographical application:	All of New Zealand
The extent to which the intermediate outcome will be achieved:	Reducing impacts of Pa on kauri where the disease exists.
The period in which the expected outcome will be achieved	Ten years
Explanation: Kauri disease has had a devastating effect in many kauri forests, and this has had a negative impact on cultural and socio-economic wellbeing of mana whenua and communities. Reducing the spread of this disease principally by controlling the spread of soil between sites, is of vital importance for the future of kauri until a treatment for kauri is found. In addition, limiting these effects by reducing the spread of the disease must be an integral part of our future actions to give kauri a fighting chance. Mātauranga Māori, including rāhui, are recognised as a valid and robust approach to preventing the spread and limiting the effects of the disease. The data currently available for the presence and impact of Pa is limited. This impacts the extent a quantum or metric can be provided to measure progress against the outcomes.	

⁸ Waitangi Tribunal *Ko Aotearoa Tenei* (Wai 262, 2011) at page xxiv.

Pest management intermediate outcome:	Exclusion
Geographical application:	All of New Zealand
The extent to which the intermediate outcome will be achieved:	Maintaining Pa free areas in places where Pa is unknown to be present, following surveillance and/or sampling using appropriate diagnostic techniques.
The period in which the expected outcome will be achieved	Ten years
Explanation: Landowners and statutory land managers of currently disease-free kauri are desperate to keep it that way. Creating kauri protection areas of kauri disease free areas is an important part of maintaining the ecological integrity of these great trees and their surrounds. The name Tāne Mahuta is seen by many as being synonymous with the rich, unique landscape of New Zealand. The tree itself has deep spiritual resonance with many New Zealanders, particularly Māori. Protecting important trees and pristine kauri forests is important for New Zealand. It is also important that we protect the genetic diversity of kauri through living seed banks and kauri plantation programmes; these could also be located outside of the traditional kauri lands. The data currently available for the presence and impact of Pa is limited. This impacts the extent a quantum or metric can be provided to measure progress against the outcomes.	

Pest management intermediate outcome:	Progressive Containment
Geographical application:	All of New Zealand
The extent to which the intermediate outcome will be achieved:	1) Suppressing the spread of Pa from all areas where Pa is unknown to be present using appropriate diagnostic techniques; 2) Containing Pa to kauri forest areas where Pa has been detected and presence is confirmed through surveillance and/or sampling using appropriate diagnostic techniques.
The period in which the expected outcome will be achieved	Ten years
Explanation: This intermediate outcome focuses on containing the disease to the known areas. The data on currently available for the presence and impact of Pa is limited. This impacts on the extent a quantum or metric can be provided to measure progress against the outcomes.	

Overarching these pest management intermediate outcomes, an overall objective is to provide for Māori knowledge, values and approaches to manage kauri disease and prevent the spread of Pa. This means that, in recognising the devastating effects of kauri disease on kauri and kauri forests, Mātauranga Māori, including rāhui, are recognised as a valid and robust approach to preventing the spread and limiting the effects of the disease.

8. The principal measures that would be in the plan to achieve the objectives [s.61(2)(c)(iv)]

The following are proposed as the principal measures to achieve the plan objectives. They will be delivered in collaboration and partnership with hapū/iwi:

1. determining and establishing kauri protection areas;
2. growing awareness, partnerships, and hapū/iwi lead collaboration and engagement across the community;

3. applying Mātauranga Māori, including cultural harvest, and the results of science and research;
4. carrying out surveillance and monitoring to enable:
 - i. mapping the distribution of kauri and kauri forests;
 - ii. mapping the presence or absence of Pa;
 - iii. understanding the rate of spread of Pa;
 - iv. understanding the impacts of Pa on kauri trees and forests;
 - v. understanding the application and effectiveness of Pa control tools, Mātauranga Māori and other management practices;
 - vi. understanding the levels of compliance with the requirements of the plan;
5. implementing hygiene standards and programmes, and imposing movement controls, on risk goods that are, or may be, capable of contributing to the spread of Pa;
6. the exclusion of stock;
7. exclusion or control of animal vectors and supporting alternative hunting opportunities;
8. managing kauri forest access in collaboration and partnership with mana whenua who may choose to use options outside of the NPMP process, including rāhui;
9. improving track user infrastructure, including track upgrades, re-routing, closures and providing alternatives;
10. applying effective treatments to kauri trees; and
11. protecting high value kauri germplasm and planting kauri trees that are less susceptible to Pa.

9. Other measures that it would be reasonable to take to achieve the objectives, if there are any such measures, and the reasons why the proposed measures are preferable as a means of achieving the objectives [s.61(2)(c)(v)]

A wide range of measures have been proposed, this is to allow flexibility to then select the appropriate mix of measures to achieve the best outcome for any given kauri or kauri forest area. This activity is achieved while at the same time maintaining requirements set in the NPMP or by the management agency, and ensuring the right of mana whenua to continue to manage and access the forest in accordance with their kaitiaki and rangatira of that forest.

Requirements and minimum standards (which reduce flexibility) have been proposed to address the risk of Pa to kauri and kauri forests. This approach will be balanced by recommending best practice for lower risk activities. Enabling landowners, land managers, businesses, communities and other groups of people to consider that advice, then decide the management approach best suited to their situation.

One measure that was considered but not preferred is the removal of infected hosts (excluding cultural harvest, which is provided for in this plan). Removal of infected hosts is a potential measure in any disease control programme, however, for the kauri programme this measure was considered inappropriate for several reasons. Firstly, science does not currently support this measure as it is unknown how long Pa would survive in the soil without its kauri host (e.g., in root material, in oospores, or in alternative hosts) and therefore effectiveness of this measure is unclear. The activity of kauri tree removal on a major scale is also a potential pathway for disease spread (through associated movement of soil on equipment etc.), and for damaging other species and ecological

values within kauri forests. Public acceptability of this measure is also likely to be extremely low. Cultural harvest, in accordance with tikanga Māori and under strict conditions to manage associated risk is provided for in this proposal (refer to section 8, measure 3, above).

Another measure considered but not preferred is the total closure of all forests with kauri to public access - including both diseased and non-symptomatic areas. Access would only be permitted for research and monitoring purposes, and for vector control of feral animals. Private landowners who retire stands of kauri would be compensated. An NPMP cannot provide power to close kauri forests. In addition, this option was not preferred as total closure of all forests with kauri represents a significant loss of access for recreational purposes, and mana whenua groups, some only recently reconnected with ancestral lands, would be alienated from the whenua and ngahere. A corresponding and significant risk of this measure is the alienation of New Zealanders from the environment they regard as their birth right. From trampers to dog-walkers, hunters to sight-seers – limiting access will be felt deeply.

For Māori, particularly those who whakapapa to the kauri forests, the inability to access what is deeply culturally significant may be distressing. Private landowners are likely to see such closures of their land as seriously undermining property rights. Enforcement and compliance for that measure would also likely to be problematic, as when communities feel alienated in this way, they are much less likely to comply. That measure could also have a commercial impact on ancillary industries, including film and television, and tourism.

Targeted closure of tracks or kauri forest areas, on the other hand, is provided for outside the Biosecurity Act 1993 (e.g., through rāhui and/or closures under Conservation legislation, the Local Government Act and the Reserves Act).

Another measure considered but not preferred is mandatory stock exclusion across all properties with kauri forest. This measure was considered both unaffordable and as poor value for money; that is, it would direct funds to stock exclusions where those funds could be better spent on other measures that reduce the impact of Pa on kauri. There is value in undertaking protection when Pa is not in a specific place. Therefore, a rule has been included in the proposal to create a rule regarding the exclusion of stock (Rule 7) and kauri protection areas which will require the exclusion of stock (Rule 12).

10. The reasons why a national plan is more appropriate than a regional plan [s.61(2)(c)(vi)]

The natural range of New Zealand's kauri forests spans Northland, Auckland, Waikato and Bay of Plenty regions.

An NPMP is preferred over multiple regional pest management plans or a pan-regional pest management plan. This is because there are some matters that require national consistency which would be difficult to achieve with multiple regional plans, such as national standards and the consistent enforceability of hygiene rules. It is also because the decision to approve the plan sits at the appropriate level for the national significance of the programme and with a Minister, rather than with multiple regional councils.

It is also consistent with the goal to establish kauri plantations, seedbanks and collaborative research in regions outside of the traditional kauri lands.

It is difficult to achieve the nationally consistent approach required to manage Pa with separate planning processes, with final 'plan approval' decisions made by separate and autonomous decision makers (i.e. regional and district councils). If an inconsistent approach is taken across regions this would increase the likelihood of Pa having greater impact on kauri forests.

A consistent regional planning approach would rely upon councillors of the day across the four regions agreeing to include consistent provisions, then on subsequent councils over successive political cycles to agree to retain these.

Four plans are more confusing than one plan, noting that some landowners, business or other stakeholders operating in multiple regions could be subject to multiple plans. Any such confusion is likely to reduce levels of compliance and, therefore, effectiveness of Pa management.

Administration of four plans would be less efficient and more complex than administration of a single plan (e.g., duplicate issuing of permissions, reporting, audit etc.), including to manage jurisdiction issues (e.g., where an exemption is sought to move a risk good between regions).

11. An analysis of the benefits and costs of the plan [s.61(2)(c)(vii)]

An analysis of the benefits and costs of the NPMP and alternative scenarios is provided in the following report available on the Kauri Protection website:

- NZIER 2021. Kauri Dieback Intervention Analysis: Modelling and Analysis of Options. Report prepared for the Ministry of Primary Industries, July 2021.

Earlier full analysis of the benefits and costs of an NPMP and alternative scenarios is provided in the following reports (available on request):

- Deloitte 2018. Cost Benefit Analysis: National Pest Management Plan for Kauri Dieback Disease. Report prepared for the Ministry for Primary Industries, December 2018.
- Deloitte 2019. Cost Benefit Analysis Addendum: National Pest Management Plan for Kauri Dieback Disease. Report prepared for the Ministry for Primary Industries, January 2019.

The overall cost benefit analysis is summarised as follows:

Pa threatens a keystone species in New Zealand's biodiversity which is taonga for Māori and iconic to New Zealanders at large. Economic costs are likely to result from further spread of the disease, the most readily quantifiable of which is depletion of the store of carbon in kauri trees that die, which would count as emissions of greenhouse gases. Various mitigation measures have potential to reduce the spread of Pa by restraining access to areas and reducing risk of transmitting the disease on the feet of people and animals. The analysis of these measures with the benefit of slowing Pa spread and the release of stored carbon shows that under some circumstances the mitigation would break even and deliver benefits in excess of costs.

A number of other benefits from ecosystem services are likely from successful mitigation, but they cannot be reliably valued. They would strengthen the case for the NPMP for delivering positive net benefits to New Zealand.

There are other costs in the NPMP for which benefits are also difficult to quantify and value, including around monitoring and surveillance of disease spread, research and scientific analysis of potential treatments, and capacity among Māori and local communities most closely affected by kauri and their ecosystems.

The cost benefit analysis did not deliver a simple number showing the net worth of the NPMP, but it did show that there are activities funded by the plan that can deliver a benefit in checking the spread of the disease. The analysis concluded kauri is an iconic species, and the costs of the NPMP are relatively small in reducing the risks to its existence which would have significant impact on New Zealanders' wellbeing and sense of identity in their environment.

The approach taken to the drafting of the rules, their application to geographical areas, entry into force date, and intended implementation relationship with regional pest management plans and other NPMPs, address to the extent possible the risks to the Pa NPMP not achieving its objective, as set out in National Policy Direction on Pest Management Part 6 clause (3).

12. The extent to which any persons, or persons of a class or description, are likely to benefit from the plan [s.61(2)(c)(viii)] and the extent to which any persons, or persons of a class or description, contribute to the creation, continuance, or exacerbation of the problems proposed to be resolved by the plan [s.61(2)(c)(ix)]

A workshop held with key MPI participants identified the following beneficiaries and exacerbators in relation to kauri disease. It was acknowledged that it is difficult to fully describe the beneficiaries and exacerbators and that in many cases the beneficiaries will also be exacerbators and vice versa (e.g. a runner who stays on track is not inherently an exacerbator but they can be if they go off track).

Beneficiaries	Exacerbators
Crown / NZ Inc. - Domestic reputation - International reputation - Relationship with Māori - Tourism reputation and revenue Hapū/iwi - Food and medicine - Cultural identity - Economic development - Capability development General public - Recreationalists - Tourism - Long-term continued use of kauri forests - Jobs - Capability development	General public - Walkers / runners - Mountain bikers - Hunters 4WD users - People who release feral animals - International tourists Landowners / occupiers (Crown, regional councils, private) - Soil movement - Turf movement - Stock movement - Market gardeners - Vectors: possums, pigs, deer, goats Contractors - Forestry - Tracks / Roads - Utilities - Fencing - Agricultural / horticultural contractors Plant nurseries

A full breakdown of the different classes of persons who are exacerbators in relation to the spread of Pa, and their associated level of risk and residual risk, is provided in Appendix 2.

13. The rationale for the proposed allocation of costs [s.61(2)(c)(x)]

There is no single industry or group who benefit or have the ability to limit the spread of the disease on their own. In addition to this unique characteristic of kauri disease, non-market values are difficult to model because of the lack of fundamental data. It is therefore considered unrealistic to attempt to impose costs for the identified beneficiaries or exacerbators.

Targeted marketing and education are ideal methods to promote biosecurity compliance and positive behaviour change. The process that would generate the best outcomes would be to educate exacerbators and forest user groups, and support and empower them to make positive changes.

Key forest user groups are identified as:

- Private Land Owners
- Recreational Users
- Locals
- Hunters
- Community Groups
- Contractors
- Mana whenua
- Schools
- Tourists (Domestic and International)

In some cases, the changes required by exacerbators may incur a cost, which may be passed on to another party (e.g. forestry contractors will need to be more careful with soil movements, which they may add to the cost of their services).

The majority of the benefits fall to either the Crown/NZ Inc or the general public as a 'public good'. It is therefore considered appropriate that the NPMP is funded by agencies that represent the 'public good', being Crown and local government, including local government agencies administering publicly owned lands.

14. If it is proposed that the plan be funded by a levy under section 100L, how the proposed levy satisfies section 100L(5)(d) and what matters will be specified under section 100N(1) [s.61(2)(c)(xi)]

N/A – it is not proposed that the plan be funded by a levy.

15. Whether any unusual administrative problems or costs are expected in recovering the costs allocated to any of the persons whom the plan would require to pay the costs [s.61(2)(c)(xii)]

No unusual administrative problems or costs are expected.

16. Any other organism intended to be controlled [s.61(2)(d)]

Animals that pose a significant risk of spreading Pa (e.g., ungulates, which can carry significant amounts of soil on their hooves) will be subject to disease control measures in accordance with this

proposal (refer to sections 8 and 21 of this proposal). Kauri plant material, including seeds and nursery plants, will also be subject to disease control measures including appropriate cultural agreements and protocols with mana whenua where the material has provenance, in accordance with this proposal (refer to sections 8 and 21 of this proposal).

17. The effects that, in the opinion of the person making the proposal, implementation of the plan would have on economic wellbeing, the environment, human health, enjoyment of the natural environment, and give effect to the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga [s.61(2)(e)(i)]

Effects on economic wellbeing

Financial benefits of undertaking the NPMP are difficult to quantify due to the inability to reliably value many of the significant benefits of protecting kauri from Pa, such as the cultural value of kauri. The most significant benefit that can be reliably valued is carbon storage

There is potential for kauri to be commercially planted and harvested, with kauri timber highly valued for its wood-working properties and appearance. Its scarcity also adds to its value. Planted stands can be high-performing and yield good growth rates. Commercial kauri have demonstrated a significant and positive net present value on land with no assigned land value – which may make it most suitable for cultivation on multiply owned Māori land, where ownership is intergenerational and on land which no other use is applied. More immediately, there are initiatives in place at the regional level, with partnerships between hapū/iwi, communities and authorities.

Domestic and international film and television producers base many of their activities in Auckland, considered to be an ideal location for filming due to the close proximity of forest filming and studio production. Restrictions on access to forests and bush may push screen production to other locations in New Zealand or to other jurisdictions.

New Zealand's kauri forests attract tourists and contribute to the landscape and image New Zealand is famous for – and which New Zealanders are proud of. Tourism spend across regions with kauri forest was \$13,979m⁹ at the time this proposal was first consulted on. The specific economic impact of kauri disease and NPMP implementation on New Zealand's tourism sector is considered further under section 17 below.

The impact kauri disease could have on regional GDP is difficult to quantify. The total GDP across regions with kauri forest is \$177,547m¹⁰, and it could be assumed there would be some impact to these figures.

The financial costs associated with the NPMP in relation to the status quo largely relate to the additional funding required to implement the plan. If short-term closures are required in certain areas of kauri forests (for example while tracks are upgraded or re-routed), tourism may be

⁹ Regional Tourism Spend, YE June 2018. Source: MBIE; <https://www.mbie.govt.nz/info-services/sectorsindustries/tourism/key-tourism-statistics>

¹⁰ Regional GDP, YE March 2020. Source: Statistics New Zealand; <https://www.stats.govt.nz/information-releases/regional-gross-domestic-product-year-ended-march-2020>

impacted; anecdotal evidence suggests tourism operators were affected by track closures as part of regional management plans (prior to Covid-19).

Further information on effects of NPMP implementation on economic wellbeing are covered in the cost benefit analysis referred to in section 11 of this proposal.

Effects on the environment

Although the emphasis of protection is on kauri, its health has benefits to the biodiversity of a much wider forest ecosystem. The presence of kauri makes forests distinctive; even when it is not the dominant tree in the canopy, a stand is still called a 'kauri forest'.

Kauri's longevity and size means that it has been cited as a foundation species. Along with its ability to change the soil environment, kauri influences the surrounding plant life and creates a distinct mix of natives, including totara, rimu, tanekaha and puriri. As part of a healthy forest, kauri also provide wider ecosystem services such as protection from soil erosion and floods.

Kauri's role as an 'ecosystem engineer' means its absence could have a ripple effect throughout bushlands. The spread of kauri disease could result in the loss of endemic species, changes in plant community structure, increased soil erosion, and changes in hydrology. Because of the ecological influence and dominance that kauri exerts, the loss of kauri as a result of kauri disease will have dramatic ecological consequences. This would increase the chances of extinction for many species highly dependent on kauri. As well, loss of kauri patches and their species diversity, would result in an overall loss of forest diversity at local and landscape scales.

Kauri disease infects all sizes of kauri and does not appear to behave differently in different landscapes or ecological situations. This suggests the disease will eventually strongly reduce abundance or entirely eliminate kauri in forests in which kauri disease occurs, leading to large changes in forest structure and composition.

A loss of kauri could negatively impact air quality and greenhouse gas pollution within the local vicinity.

The effect of NPMP implementation is to reduce or reverse, where possible, impacts on the environment referred to above. This includes application of measures that slow the spread of the pathogen, reduce its distribution where possible, protect high value germplasm and plant more tolerant strains of kauri, and improve kauri tree health (with associated beneficial impacts for wider biodiversity given kauri's role as an ecosystem engineer).

Further information on effects of NPMP implementation on the environment are covered in the cost benefit analysis referred to in section 11 of this proposal.

Effects on human health

Kauri is more than a tree to New Zealanders. It is an icon – a symbol of the country. It has aesthetic appeal and spiritual connection to many, and particular spiritual significance to Māori, especially those who whakapapa to the kauri lands. Mana whenua are kaitiaki (guardians) of the environment and of kauri, connected to the whenua (authority of ancestor-owned land) through tikanga

(customs), culture and whakapapa. The connection between kauri and cultural health and wellbeing of Māori are covered further below.

Kauri's role in New Zealand's forests attracts tourists and contributes to the landscape and image New Zealand is famous for – and which New Zealanders are proud of. New Zealanders collectively share a strong connection and care for the environment. The outdoor culture is embraced and promoted nationally and internationally, so people can share in New Zealand's environmental beauty.

There are general health and wellbeing benefits provided from nature and green spaces. While not specific to kauri forests, a large body of international research suggests that exposure to natural environments has direct positive effects on health and wellbeing benefits. Green spaces seem to influence health and wellbeing benefits in three main ways: by providing opportunities to partake in physical activity; by facilitating the development of social capital; and through direct restorative effects, including recovery from stress and 'mental recharging'.

The effect of NPMP implementation is to prevent loss of human health benefits associated with kauri forests existence. And to empower communities to take a role in protecting kauri, better enabling them to be closer to decision-making and make a contribution to its protection. NPMP implementation is likely to result in greater awareness among New Zealanders, and greater capability among local communities to fight kauri disease, occurring as resources flow to them. An NPMP should be a positive and affirming process for both the Crown, mana whenua and New Zealanders.

Effects on enjoyment of the natural environment

As a nation, New Zealanders care about their environment. Statistics New Zealand's General Social Survey (GSS) 2017 shows the environment rated first equal with 'Freedom, rights and peace', in important characteristics defining New Zealand. Outdoor activities, socialising and embracing the rich environment is a large part of New Zealanders' culture – it is part of who we are.

Tramping, camping, hunting, mountain biking and running in the bush are everyday activities New Zealanders take for granted. Restrictions on these popular recreational activities could come through both the management of kauri dieback limiting the use of the forests (including forest closure or track re-routing), but also the progression of the disease causing kauri loss and limiting the quality of recreation.

Effects on the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga

Māori share a special connection with the whenua (land) and environment as Māori traditions emphasise the responsibility to act as kaitiaki (guardians, caretakers) of the. Māori creation stories describe Tāne Māhuta (God of the Forest) as the creator of mankind and the forest, including natives such as kauri (Royal, 2007). Through the connection man and forest have with Tāne Māhuta, Māori and kauri are whanaunga (related, connected) through whakapapa (genealogy). The whānaungatanga (kinship, sense of connection) between hapū/iwi and kauri are influenced by the local variety of plantation within hapū/iwi rohe (region) throughout New Zealand. Kauri are prominent in northern areas, such as Te Tai Tokerau (Northland, Far North), Tamaki Makaurau (Auckland), Waikato, and Te Moana-a-Toi (Bay of Plenty), where the environment nourishes kauri

growth and seeding. The hapū/iwi of these regions traditionally weaved the significance of kauri into their way of life, voicing their whanaungatanga through waiata (song) which describe hapū/iwi history and landscapes; through tikanga (protocol); rongoā (indigenous medicines); and through acknowledging and voicing their shared whakapapa (genealogy) with nature. Kauri forests are also used as a place to spend time with whānau and for spirituality. Through these practices, cultural identity is intricately woven into the fabric of ancestral whenua (Forster, 2012), and hapū/iwi are the kaitiaki of their whenua (authority of ancestor-owned land).

As an example of the effects on Māori culture and custom, Te Roroa, an iwi from the Far North and kaitiaki (guardian) of the Waipoua forest, feel the health of Waipoua forest, the mauri of the kauri forest and the mana of Te Roroa are inextricably linked; where one suffers, all suffer. Kauri are a taonga, and if kauri disease spreads or is left untreated, kauri could become effectively extinct in its native habitat and northern hapū/iwi could experience loss to their mana, wairua and whenua. The effective extinction of part of hapū/iwi whakapapa may affect Crown-Māori relations. Hapū/iwi with local kauri may consider this a violation of Treaty of Waitangi/ Te Tiriti o Waitangi articles and/or principles leading to Treaty/Tiriti claims, seen recently with Te Kawerau ā Maki. The loss of kauri could negatively impact Māori ability to access and produce traditional medicines, like kauri gum for burns. Kauri has also been used for traditional customs, including resin used in burning soot for tattooing, for waka and more recently for marae.

Benefits of an NPMP on the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga are in relation to:

- Kaitiakitanga (Intergenerational, Sustainability)
 - Treaty/Tiriti partnership role in joint decision-making to protect biodiversity
 - Disease spread decreased or halted
 - Kauri survival for future generations
 - Use of Mātauranga Māori and tikanga to protect kauri, for example the recognition and support of rāhui
- Whanaungatanga (Connectedness)
 - Community effort with all people playing their part · Recognition of mana whenua · Protection of whakapapa
- Ōhanga/Whairawa (Prosperity)
 - Māori enterprises, particularly tourism and social enterprise
 - Controlled harvesting of deceased kauri
- Manākitanga (Care, Reciprocity)
 - Adherence to Te Tiriti/Treaty articles and principles and protecting a taonga – joint decision-making
 - Hapū/iwi trust in the relationship with the Crown
 - Faith in biosecurity measures that are informed by Te Ao Māori
 - Improved capability, knowledge and skills in the kete
 - Respect and protection of Mātauranga Māori intellectual property

Costs of an NPMP on the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga are in relation to:

- Kaitiakitanga (Intergenerational, Sustainability)
 - Conservation; cost of imposing a rāhui

- Self-restriction and cost of caring
- Whanaungatanga (Connectedness)
 - Reduced control and rangatiratanga over aspects of ancestral whenua
- Ōhanga/Whairawa (Prosperity)
 - Tourism; impacting Māori enterprise
 - Contribution to co-fund land management
- Manākitanga (Care, Reciprocity)
 - Developing Mātauranga Māori
 - Upskilling “champions”
 - Building capability among hapū/iwi members to inform community and visitors

18. The effects that, in the opinion of the person making the proposal, implementation of the plan would have on the marketing overseas of New Zealand products [s.61(2)(e)(ii)]

The NPMP supports the international reputation of New Zealand as a “green and clean country” with “an advanced and comprehensive natural resource management system” (OECD, 2015)¹¹. An overview of place-branding by Hall (2010)¹² notes the array of campaigns successive government agencies have used to underscore the value of the country’s landscapes and environment. 100% Pure has been in use for nearly 20 years, and multiple sources acknowledge it as a highly successful tourism campaign. Hall notes the role of ‘clean and green’ in New Zealand’s international image has only been enhanced by 100% Pure and it is ‘arguably New Zealand’s international place brand’. The NPMP is likely to benefit New Zealand’s tourism industry. New Zealand’s kauri forests attract tourists and contribute to the landscape and image New Zealand is famous for – and which New Zealanders are proud of. Tourism spend across regions with kauri forest was \$13,979m when this proposal was first developed (pre-Covid) (refer to Table 1. Below).

According to the Lonely Planet Guide for New Zealand, the top three sights in New Zealand are based in Northland; Waitangi Treaty Grounds, Te Matua Ngahere and Tāne Mahuta respectively. The implementation of an NPMP will preserve these attractions for future tourists and assist in local tourism spend for Northland.

Table 1 below illustrates the 2018 regional tourism spend for regions with naturally occurring kauri. While it is not possible to disaggregate the spend directly attributed to kauri-related tourism, Northland has a strong branding focus on nature-based recreational activities, so it can be assumed that a portion of the tourism spend in Northland is at risk. If the attractiveness of Northland as a tourist destination were undermined by the loss of kauri which is not unreasonable to consider – it may be tourists simply spend more time elsewhere in New Zealand and thus the impact is much more significant to Northland than to New Zealand as a whole. It is however possible that some tourists may choose to spend longer in New Zealand so that they may have time to visit Northland.

¹¹ OECD. (2015). Environmental performance reviews: New Zealand 2017. Retrieved from https://www.oecd.org/environment/countryreviews/Highlights_OECD_EPR_NewZealand.pdf

¹² Hall, C.M. (2010) Tourism destination branding and its effects on national branding strategies: Brand New Zealand, clean and green but is it smart? European Journal of Tourism and Hospitality Research, 1 (1), 68-89.

Table 1. Regional Tourism Spend, YE June 2018 (\$m)

Region	Domestic	International	Total
Northland	852	269	1,121
Auckland	3,997	4,360	8,357
Waikato	1,943	683	2,626
Bay of Plenty	1,281	594	1,875

Source: MBIE; <https://www.mbie.govt.nz/info-services/sectorsindustries/tourism/key-tourism-statistics>

For much of Northland, kauri is inseparable from its identity as a region. A Google search shows over 944,000 websites with the combination of 'Kauri' and 'Coast', and the Kauri Coast identity shows through in some of the region's most well-known attractions, including the Waipoua Forest Park and the Matakoho Kauri Museum. Northland's tourism offering also hinges on various nature walks and ancient living forests, which have high volumes of kauri trees. In the Waipoua forest lives Tane Māhuta, the largest known kauri tree standing 51 metres tall, alongside the second- and third-largest kauri. This means tourists can walk among the kauri giants.

Kauri is also a fulcrum in Northland's Regional Growth Programme. The Northland Journeys – Byways initiative includes three road-based journeys, of which one is the Ancient Kauri Trail. The Byways is expected to bring \$20 million to Northland's economy from 2020. Northland Inc is also investing in upgrading walking tracks around key kauri visitor sites.

Northland puts a high level of emphasis on kauri in its tourist offerings. There are also significant kauri forests located in Auckland and Waikato (Coromandel) and smaller local kauri forests in Bay of Plenty which have their place in the tourism and recreational offerings of their respective regions.

A weakening of endemic biodiversity, contrary to New Zealand's national and international commitments to the protection of biodiversity and image, would impact on the place-branding and in-directly on the general marketing of New Zealand products.

Note: *Tangata Whenua Roopu object to this section. Māori do not conceive of kauri within a profit or loss lens – it just is and it needs protecting. This should be seen neither as something that causes loss or adds value. As such, and while they do not object to this part of the report being included, they do not support the framing of kauri in such a way.*

19. If the plan would affect another pest management plan or a pathway management plan, how it is proposed to co-ordinate the implementation of the plans [s.61(2d)(f)]

The extent to which a rule in a national pest management plan is inconsistent with a rule in a regional pest management plan, the rule in the national pest management plan prevails. However, the management agency is committed to working with councils to identify specific areas where existing rules or processes essentially cover the intent of the NPMP rules (e.g. in relation to earthworks). This work will then contribute to the education and awareness stream of work and the compliance/enforcement stream of work.

While no conflicts have been identified between this proposal and existing national pest management plans, if conflicts were to occur in the future, there would be engagement between

management agencies, resulting in either the amendment of existing Plans or a change in approach in the operationalisation of an existing Plan or further development of a future Plan proposal.

20. The powers in Part 6 that it is proposed to use to implement the plan [s.61(2)(g)]

It is proposed that the following Part 6 powers be conferred on the management agency to enable it, and authorised persons under the NPMP to implement the plan:

Section	Power	Reason why the power is needed
106	Power to require assistance	So, an 'authorised person' can seek assistance when required
109	Power of inspection	To carry out monitoring for the purpose of confirming presence, former presence, or absence of Pa, and for locally eradicating or managing Pa.
111	Entry in respect of offences	To investigate potential non-compliance where all reasonable efforts to achieve cooperation have been exhausted
112	Duties on exercising power of duty	To ensure that in the exercise of s109 and s111 that certain behaviours/actions are followed.
113	Power to record information	To enable recording or gathering of information when sections 109 or 111 are used
114	General powers	To enable expedient actions to be taken to manage any serious risks that could lead to further spread of Pa when sections 109 or 111 are used
114A	Application of articles or substances from aircraft	To enable kauri trees to be sprayed by helicopter where this is the most cost-effective approach This may be useful for research purposes or if a new aerial applied tool is developed during the 10-year period of the plan. Note: Approval by a chief technical officer in the Ministry for Primary Industries is required to access this power.
115	Use of dogs and devices	To enable use of detector dogs or any other devices to assist with surveillance or monitoring when sections 109, 111, 113, 114, or 120 are used
118	Power to seize evidence	To enable evidence to be collected when section 111 is used
119	Power to seize abandoned goods	To enable seizure, treatment or disposal of any risk goods that appear to have been abandoned and that create a serious risk
120	Power to intercept risk goods	To enable any craft (e.g., vehicle) to be stopped, and to open anything to inspect the contents for the presence of risk goods (e.g., kauri plant material), when sections 130 and 131 have been used
121	Power to examine organisms	To enable collection and testing of material for the purpose of establishing whether Pa is present or absent

121A	Power to apply article or substance to place	To enable monitoring where equipment or a substance need to be left in a kauri forest in order to collect information
122	Power to give directions	To enable the management agency or authorised person to give directions to comply with rules in this plan
123	Power to Vaccinate	To enable the management agency or authorised person to apply any procedure to organisms (e.g., a treatment to improve tree health or control Pa)
128	Power to act on default	To enable the management agency to act on default where a notice has been issued, and to recover the costs and expenses reasonably incurred
130	Declaration of restricted place	To enable management of new incursions of Pa (detected for the first time in a zone), so that specific requirements can be applied in high risk situations, or potentially used for 'kauri protection area' to create highly restricted access
131	Declaration of controlled area	To enable movement controls to be put in place, including the controls on various risk goods (machinery, people/boots, plant material etc.)
134(1)(b)	Enforcement of Area Controls	To enable an inspector or authorised person to move, direct or arrange the movement of goods in contravention of a CAB (s131) (ie. Give an exemption to a CAN)
135	Options for cost recovery	To enable recovery of costs (e.g., where a landowner or occupier responsible for an area of kauri forest refuses to cooperate and comply with a notice of direction)
136	Failure to pay	To enable recovery of costs

21. Each proposed rule and an explanation of its purpose [s.61(2)(h)]

The proposed NPMP includes a core set of 'rules' and powers relating to how 'kauri forest areas' are used and managed, to ensure the plan is effective. Some of the rules also apply beyond kauri forest areas, for example, to other kauri trees or alternative host plants and associated soil on farms, in gardens, in nurseries etc, and to risk goods. This wider application is clarified in the 'policy intent' for each rule below.

The rules may require businesses and people to undertake new procedures (like cleaning vehicles) when going in and out of kauri areas or require landowners to report regularly on the progress of kauri disease, and visitors to kauri forests might be subject to inspections and compulsory cleaning of shoes and equipment.

Many of the powers in the proposed NPMP are similar to ones already used by organisations such as councils and government agencies to control animal health, risks to the environment, or public safety. Businesses are required to make management plans and keep records about a range of issues and provide them to officials if asked. Certain diseases or pests have to be reported by farmers if seen in animals or plants, and changes made to procedures to stop them spreading. For kauri, Controlled Area Notices (CANs) already allow the councils to put up measures to stop people entering tracks and spreading Pa or require people to go through cleaning stations.

The NPMP provides an opportunity to bring many of these existing powers together into a cohesive set that can be used anywhere kauri trees are growing. These rules will be aimed at protecting kauri alone, rather than trying to cover a lot of biosecurity and environmental issues. They would also give the Management Agency the power to take action against individuals or organisations that are deliberately or negligently endangering kauri by not following the rules. This could be in the form of infringement fines or prosecution in court.

It is proposed that the contravention of all rules in this proposal be an offence under the Biosecurity Act 1993. It is proposed that the contravention of Rules 9 (Obligation to Clean Items) and 10 (Obligation to use Hygiene Stations) be considered as infringement offences pursuant to s.165 of the Biosecurity Act 1993 (i.e. under a Biosecurity (Infringement Offences) Regulations 2010).

It is proposed that three rules will apply nationally (Rule 1 – Obligation to report; Rule 2 – Provision of Information; Rule 3 – Restriction on movements of plant and soil).

It is proposed the remaining rules (Rules 4-12) will only apply to regional council areas where kauri naturally propagate, specifically: Northland Regional Council, Auckland Council, Waikato Regional Council, and Bay of Plenty Regional Council. The option of defining the area by regional council areas was preferred over an alternatives including 'north of the 38th parallel' in order to provide clarity and certainty. This approach reflects the consultation undertaken and supports the management agency and kauri programme members to focus resources on the biggest risk areas.

The rules are set to come into force at the same time as the order in council enters into force. Where there is a need for a phased approach this is identified in the policy intent.

It is also the intent that the implementation of the rules has a strong focus on education, awareness and support particularly where there have been no similar existing rules or voluntary requirements in place. Support may take in a range of actions for example it may involve developing easy to fill-out templates, development of guides and in some limited cases support may involve the provision of resources to build capacity.

The rules contain actions that the management agency or authorised person will or should take. There is no policy intent to make the management agency or authorised person liable to an offence through the rules.

The following are the proposed rules and associated explanation of policy intent:

Rule 1 - Obligation to Report	Policy Intent
If the owner or occupier of any land with kauri tree present recognises that kauri plant/s or kauri tree/s may be exhibiting symptoms of kauri disease they must notify the Management Agency or an authorised person as soon as reasonably practicable after first recognising those symptoms. Failure to comply with this rule is an offence.	The intent of this rule is to enable the management agency to receive and gather new information on Pa distribution, so it can arrange further testing/diagnostics when new symptoms or potential symptoms appear. The intent is that this rule applies to any kauri tree across New Zealand. This information is fundamental to decisions on the best approach to disease management, to setting the boundaries of zones and kauri protection areas, and to understanding whether NPMP objectives are being achieved. The intent is that this obligation does not apply if the person knows the management agency is aware the tree is or may be exhibiting the symptoms. The policy intent is that 'occupier' does not apply to casual occupiers eg. tourists, visitors or contractors on a farm.
Rule 2 – Provision of Information	Policy Intent
The management agency or an authorised person may request in writing for a person to provide specified information. The person to whom the request is made must then provide the requested information to the management agency or authorised person in writing within 48 hours of receiving the request or longer period if specified by the management agency. The information the management agency or authorised person can require to be provided to them is information about the presence, condition, source, movement or distribution of- a) kauri or other alternative Pa host plant material; and/or b) soil or other growing medium that has or may have come into physical contact with a kauri or other alternative Pa host plant material; and/or	The intent of this rule is to enable the management agency to understand the disease status of kauri (e.g., the presence/absence of symptoms, the range of symptoms, the areas of forests affected), and to understand the nature of any movements of risk goods that could impact disease status for management purposes. The intent is this rule applies to any kauri tree, alternative host plant of Pa, or any 'risk goods' that could harbour or spread Pa. This information is fundamental to decisions on the best approach to disease management, including understanding the mechanisms by which Pa can spread, and tracing where Pa may have spread 'from' and/or 'to' in specific situations so the management agency can respond to mitigate any further risk of spread and/or manage compliance.

c) machinery, equipment or persons that may have come in physical contact with any kauri or other alternative Pa host plant material, or any soil or other growing medium that has been in physical contact with any kauri or other alternative Pa host plant material. Failure to comply with this rule is an offence.	The provision of information to the management agency, including monitoring and reporting will apply equally to results of Mātauranga Māori based solutions/activities, except where doing so would amount to a breach of protected intellectual property. It is intended that the procedure to be followed when giving a direction under this rule would be in accordance with s 164A of the Biosecurity Act 1993 (includes in person, email, fax and by post).
Rule 3 – Restrictions on Movement of Plant Material and Soil	Policy Intent
Any kauri plant or kauri tree sold, offered for sale or gifting, or moved between sites in New Zealand must be produced under a kauri plant production plan that has been approved by the management agency or an authorised person. The kauri plant production plan must contain detail on practices and procedures to be undertaken to ensure: a) any person involved in the propagation or growing of kauri plants is aware of Pa and know the vector pathways, and the signs and symptoms of kauri disease; and b) cones and seeds collected are free from soil contaminants and come from an area where Pa is not detected and kauri trees are in good health, showing no signs of stress such as yellowing of leaves or any trunk lesions; and c) growing media used for kauri is free of soil or material sourced from kauri forests, is not reused, and is not mixed with any unknown source of growing media; and d) all containers including, bins, pots, bags, trays, plus tools and surfaces used for kauri propagation or growing are thoroughly cleaned and sanitised before any reuse, using Management Agency approved processes; and e) a strict batching process for kauri plants is used where plants from each seed sowing and/or potting activity are treated as	The intent of this rule is to put in place appropriate requirements for the high-risk activity that is the movements of young kauri plants, associated growing media and seedsPa. This rule seeks to ensure that this high-risk activity is undertaken by only those individuals/organisations that have implemented thorough Pa spread mitigations, detailed within a comprehensive production plan. Any movement of kauri plant, seed, or associated media between sites that is undertaken without adherence to an approved (and implemented) plan will be an offence. The policy intent is that the person responsible is the person undertaking the growing or propagating of the plant and that this include, for example, the gathering of seeds.. It is the policy intent that evidence can be requested during production, prior to during or after the movement of the material. It is the policy intent that the rule aligns with a voluntary industry standard that has been developed by Plant Pass to enable a streamline and connected approach with industry with the exception of testing. The intent is that this rule does not apply to kauri that can't grow or propagate (eg. felled timber). This rule recognises that under current arrangements, kauri disease could be inadvertently and rapidly spread though such activities, increasing the risk

separate batches and large batches are split into smaller sub-batches to limit risk of inadvertent contamination spreading; and f) that there is weekly monitoring of kauri plants for disease symptoms and inspection for contaminated inputs are carried out, documented and kept on record for a minimum of three years; and g) kauri plants are held on site for minimum of 3 months from potting prior to dispatch, and during that period, batches are not mixed, and the kauri plants are kept away from propagation areas and other plants until delivered to their intended location; and h) end of process Pa testing for each production batch of kauri plants is carried out by an independent laboratory approved by the Management Agency, that uses appropriate sampling and molecular diagnostic methods and that records of testing are to be held for minimum of three years and be provided to the Management Agency on request. The person responsible is the person responsible for growing or propagating the kauri plant or material for gifting, sale or movement. The person responsible must be able to provide evidence that the kauri plant or kauri tree is being produced or has been produced under a production plan authorised by the management agency or an authorised person. Exemptions may be applied for to the management agency. Failure to comply with this rule is an offence.	that Pa is spread either directly into kauri forests (i.e. through kauri tree or alternative host planting), or indirectly (e.g., through Pa spread to gardens or restoration plantings, then spread from these into kauri forests). The nature of the plant production industry and associated transport system is such that young plants, such as kauri, are grown right across NZ (well outside the native range of kauri) and can be transported across NZ within 24 hours. There is no control over where trees are then planted following point of sale. Likewise, there is no existing control over the collection of seeds, which can be collected from across NZ. The current state of knowledge of alternative Pa host plants and associated risk is limited. Best available science and technical advice is that to date, kauri is the only tree known to be susceptible to disease in the field. However, it is likely that there are many other native and exotic plants that can be colonised by Pa, harbouring or proliferating the pathogen without necessarily showing symptoms (i.e. symptomless hosts). Improving this is a significant focus of current research. The policy intent is that any production started on or after this order in council enters into force must adhere to this rule. Any existing stock being held in nurseries must meet requirement 'h' (batch testing) before it is moved. Exemptions could also be sought and provided for. A person moving material that contains Pa or is likely to harbour Pa will still require a CTO permission under s 52 and/or 53 of the Biosecurity Act 1993.
Rule 4 – Obligation to have Pa Risk Management Plan if Required	Policy Intent
If the management agency or an authorised person identifies any kauri forest area, an area that is part of a kauri forest area, or any other designated area, as requiring a Pa risk management plan in order to control the spread (containing to or excluding from a site), or limit the effects, of kauri disease, the occupier will be informed by the	The intent of this rule is to enable the management agency, in collaboration and partnership with hapū/iwi (through its network of authorised persons) to focus on properties that may be at risk of becoming infected or create a risk to other properties. e.g. by way of physical proximity to properties that are at risk of infection, properties that have regular foot or vehicle traffic or physical

management agency or authorised person in writing and be provided with a reasonable timeframe for the development of a Pa risk management plan that is not less than ninety days. The occupier of the land must- a) consult with the management agency or authorised person in preparing a kauri Pa risk management plan; and b) have the plan approved by the management agency or authorised person; and c) implement the plan as approved by the management agency or authorised person; and d) report on compliance to the management agency or authorised person as set out in the plan. The Pa risk management plan must contain the following matters: i) Objectives of the plan specifically whether the plan is to protect the area from kauri disease or prevent the spread of disease; ii) Actions to achieve the objectives (eg. fencing; education); iii) Map(s) with the area that the management plan applies to and within that area including any kauri tree locations and other significant features (eg. other trees, plants, roads or tracks, hygiene stations); iv) Procedures to be undertaken when an activity is occurring (eg. cleaning procedures); v) Reporting requirements on progress on implementing the plan. If the occupier of land is not responsible, or for any reason cannot be made responsible, for the management of the land or cannot be identified, the owner of the land must comply with the requirements of this rule.	features, such as downhill run off, that increase the likelihood of disease vectoring to occur. If the occupier and owner cannot be contacted it is possible that public notification may occur. It is intended that a breach occur if any or all of the requirements 'b' to 'd' are not met. The policy intent is that 'any other designated area' may include but would not be limited to areas of land where forests are regenerating with kauri plants or are being planted in kauri; kauri sanctuaries; kauri plantation areas; or areas in close proximity to kauri that are at risk. The policy intent is that notice is largely given in accordance with s 164A of the Biosecurity Act 1993 (includes in person, email, fax and by post). Section 164A(2) enables service to be effected by leaving the notice in a conspicuous place if the person cannot be found. It is also proposed that the management agency can publicly notify if the owner/occupier cannot be located. Public notification is by notification on the management agency website and either public notice by newspaper or radio. The notice must state the date the person must have a Pa risk management plan by – i.e no less than 90 working days (from date of service) and be reasonable.
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This rule is subject to hapū/iwi being involved in the identification of a kauri forest area Failure to comply with this rule is an offence.	
Rule 5 – Obligation to have an earthworks Pa risk management plan if applicable	Policy Intent
A land occupier who intends to undertake earthworks, or have any earthworks undertaken, within 3x the dripline of a kauri tree canopy must ensure there is an earthworks Pa risk management plan for managing the risk of spreading Pa and that the plan is complied with through the course of the earthworks. The occupier - a) consult with the management agency or an authorised person in preparing an earthworks Pa risk management plan for managing the risk of spreading Pa; and b) have the plan approved by the management agency or an authorised person; and b) implement the plan as approved with the management agency or an authorised person; and c) report on compliance with the plan after the completion of the works or as otherwise requested by the management agency or authorised person. The earthworks Pa risk management plan must contain all of the following matters: i) The objectives of the management plan ii) Activities to be undertaken; iii) Map(s) with the area that the management plan applies to and within that area the: kauri tree locations, kauri hygiene zone and kauri contamination area, boundary of works,	This rule is intended to capture only earthworks which are close to kauri trees. It is intended to complement the Thames Coromandel District Council decision/plan. This is not required if the council already has a definition of earthworks and processes for managing to prevent the spread of Pa in its Plan that address the points in i-vii. The inclusion of an authorised person is intended so that there is the potential, if the management agency and relevant council agree, for earthworks Pa risk management plan components to be undertaken at the same time and alongside other components of earthworks risk management being undertaken for other regulatory requirements. The earthworks definition in the proposal is purposefully very similar to the RMA definition with the exception of excluding substrate and including the use of machinery or tools. However, it is not the policy intent to capture domestic cultivation or burial of domestic animals by the occupier and/or owner of the land as long as the tools and machinery for those activities are not used on other sites. The reason that the capture of these activities was a concern is that the rules need to be enforceable (eg. being realistic that we're not going to monitor people's urban garden environments), manageable (that we have the resources to process and make decisions on the most important earthworks Pa risk management plans) and not lead to perverse incentives (eg. farmers cutting down kauri trees). It is intended that a breach occur if either the requirements in 'b' or 'c' and/or also content requirements in i-vii are not met.

access signage, kauri hygiene signage, parking area and access routes, washdown area, boot/gear washing area. iv) Cleaning procedures for all vehicles, equipment and personnel; v) Procedures for the management of any soil, sludge or organic material retained within the kauri hygiene zone and kauri contamination zone either transported in a sealed vehicle to an approved landfill that has procedures in place to accept kauri material. vi) Water management procedures to limit the risk of potentially contaminated water, including washdown water, spreading to any risk areas, including to kauri hygiene zones (where the water comes from outside it). And, in urban areas, the water management procedures should provide for the discharge of potentially contaminated water more than 30m from a water course so it does not enter a kauri hygiene zone vii) Reporting requirements to the management agency. If an earthworks contractor is engaged to complete the works the land occupier must ensure the contractor has a written copy of the management plan for managing the risk of spreading Pa to any contractor in writing before any work on site commences. A contractor must not commence work on site unless they have received a copy of the management plan for managing the risk of spreading Pa. If the occupier of land is not responsible, or for any reason cannot be made responsible, for the management of the land or cannot be identified, the owner of the land must comply with the requirements of this rule. This rule does not apply if the relevant regional or district plan has earthwork requirements which include all of the following: objectives, activities, maps and procedures that address the risks in a kauri forest	
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area relating to cleaning, management of soil, sludge or organic material, and water management, and contain a reporting element. The management agency may exempt an occupier or land owner from having to comply with this rule in emergencies and for activities on the land that has a low risk of spreading Pa. Failure to comply with any part of this rule is an offence.	
Rule 6 – Restriction of Movement of things into Special Risk Areas	Policy Intent
If the management agency has identified an area as a special risk area and advised the occupier in writing of that, no person may move soil, or goods that have any visible soil on them, or any plant material, into the area except with the prior written approval of the management agency or authorised person. Failure to comply with this rule is an offence.	The intent of this rule is to prevent Pa from spreading into kauri forest areas that, as far as is known, are not yet affected by Pa. There is a high risk associated with movements of soil and kauri plant material and goods that could harbour soil or plant material contaminated with Pa (e.g., contaminated machinery and equipment) into these areas. The intent is that the management agency or authorised person would have the ability to issue exemptions to this rule. Such exemptions the management agency may consider include: a) for activities directly controlled by the management agency and its contractors (with associated risk to be addressed through contractual requirements) b) for emergency operations carried out by emergency services where groups implement schemes that effectively address the risk of Pa spreading (e.g., certification to standards, with associated monitoring and compliance) c) for cultural material retrieval. It is the policy intent that consideration is given to including or excluding roads on a case by case basis when/if relevant for an area under consideration. The policy intent is to restrict the movement of items including: a) any kauri or alternative Pa host plant material: and/or

	b) any soil or other growing medium that has or may have come into physical contact with kauri or alternative Pa host plant material. The policy intent is that the minimum size of a special risk area is 3x the dripline of a kauri tree canopy. It is intended that sufficient signage and/or internet notifications must be in place in a reasonable time period to inform persons entering that special risk area of the status and movement restrictions and the method for contacting the management agency. It is not the policy intent to make the occupier or landowner responsible in situations where they have undertaken reasonable measures (for example signage at road ends or common entry points and/or internet notifications) to inform other possible persons accessing or using the site of this restriction. In such situations, it is the policy intent to make the person accessing or using the site that is not the landowner/occupier responsible. The policy intent is to mirror the provisions in s 131 of the Biosecurity Act 1993 (controlled area notices) – this requires public notice (as above) but the CTO, or in this case, the management agency can decide on other methods of notification if effective and appropriate.
Rule 7 – Farm Stock Exclusions	Policy Intent
If the management agency or authorised person identifies any land from which farm stock must be excluded in order to avoid the spread of Pa (through containment or exclusion), or mitigate the effect, of kauri disease, the management agency or authorised person will communicate this to the occupier in writing and provide a reasonable time period for any work to enable stock exclusion to be undertaken. All farm stock must be excluded from that area within the time period stipulated by the management agency or authorised person unless an extension to the timeframe is sought by the occupier and agreed by the management agency or authorised person in writing. Responsibility for complying with this rule lies with the occupier.	The intent of this rule is to address situations where stock movements on a property are creating a high risk of Pa spreading either to the site or from the site. Matters that must be taken into account when determining when stock must be excluded include ensuring the risk associated with stock movements is considered alongside/within context of the overall level of risk and risk management approach for other relevant vectors of Pa. The policy intent is to build on the ‘Protecting Kauri: Rural Landowners Guide’. The policy intent is that notice is given in accordance with s 164A of the Biosecurity Act 1993 which includes in person, email, fax and by post

If the occupier of land is not responsible, or for any reason cannot be made responsible, for the management of the stock or cannot be identified, the owner of the land must comply with the requirements of this rule. Failure to comply with this rule is an offence.	enables notification via leaving the notice in a conspicuous place if the person cannot be found. The notice must state the timeframe the stock must be excluded by.
Rule 8 – Prohibition on Release of Animals No person may release or cause to be released an animal in, or into, a kauri forest area, or at a place where it could reasonably be expected to get into a kauri forest area, unless a) the animal is part of the occupier’s farm stock and the area is not one that is subject to a stock exclusion under rule 7; or b) the animal is intended to be retrieved on the same day as it is released, and the animal is cleaned before it enters the kauri forest area and on leaving it, and is under the active care and control of the person who has released it all times; or c) the release is authorised through separate legislation or the management agency and complies with any conditions of the authorisation. The cleaning of any animal (under ‘b’) must result in the animal being free of visible soil and organic matter. Failure to comply with this rule is an offence.	Policy Intent The intent of this rule is to strengthen the regulatory framework for managing risk of Pa spread associated with release of high-risk animals into a wild state. It is intended to cover both active releases, and other more passive methods that could be used to release such animals (e.g., feeding to attract animals, or failing to contain such animals through poor fencing, leaving a gate open etc which is intended to be captured by the phrase “cause to be released”). This rule is directed to people who release animals into the wild for any purpose, including hunting. The rule prohibits such a release if it means that the animal gets into, or could get into, a kauri forest. The containment of farm stock is dealt with by rule 7. This rule needs to apply broadly to avoid release into other areas from which animals can then spread to kauri forest. The ‘care and control’ of the animal could be similar to that used in the Dog Control Act. There is no policy intent to undermine other legislation which strictly prohibits the release of specific animals (eg. Wild Animal Control Act 1977). Likewise, there is no policy intent to restrict or add any requirements to the release of animals allowed under legislation (eg. release of wildlife under the Wildlife Act 1953 administered by the Department of Conservation).
Rule 9 – Obligation to Clean Items	Policy Intent

Any item entering a kauri forest, that has or may have come into physical contact with the ground (such as footwear, sticks, packs, wheels, machinery), must be free of visible soil and organic matter. The person responsible is the person in control of that item. Items must be cleaned: a) immediately before entering a kauri forest area; and b) immediately after leaving a kauri forest area. Failure to comply with this rule is an infringement offence.	The intent of this rule is to reduce the risk associated with off-track forest users, including hunters, commercial operators, community groups and others, by establishing a basic minimum requirement. The policy intent is that the cleaning of any item result in the item being free of visible soil and organic matter when that item is viewed from any angle (eg. underneath a vehicle). Off-track use of kauri forests is diffuse; off-track forest users will frequently not use a track entry or exit points with hygiene facilities, and they pose a greater inherent risk relative to track users as they are directly in physical contact with soil and surface kauri tree roots (cf. on a managed track surface). This rule needs to be complemented by inclusion and monitoring of hygiene requirements within contracts, concessions, permits or other forms of agreement with commercial off-track users. And by working closely with hunters and community groups to build a culture where good hygiene, keeping away from kauri tree roots, and reporting symptoms are a routine part of off-track use. Potential for simple and common-sense guidelines and/or a voluntary certification approach (supported with education, training, and resources) is an option that may support this rule and be considered further during implementation. Such approaches are only likely to be effective if developed in partnership with hapū/iwi and while building strategic relationships with peak bodies or other groups representing off-track users (e.g., hunting groups, and peak bodies representing contractors), and with strong leadership by such groups to drive implementation with appropriate support of the management agency.
Rule 10 – Obligation to use Hygiene Stations	Policy Intent
Every person on a track or road where a kauri disease hygiene station is located must use the hygiene station before entering the area beyond	The intent of this rule is to reduce the risk associated with forest users using tracks by requiring that hygiene facilities provided are used. The use of

the hygiene station to clean items (as it applies to the risk items with the person such as footwear, sticks, packs, wheels, machinery) so there is no visible dirt or organic material on risk items. Failure to comply with this rule is an infringement offence.	hygiene stations should ensure support items, such as footwear, bicycles and any associated or other equipment, used on tracks are free of soil. The policy intent is that the hygiene station must be used on the way into the forest and on the way out of the forest. The intent is this rule applies to kauri forest areas only. All hygiene stations would need to be clearly labelled to make explicit they are kauri disease facilities approved by the management agency, and to make explicit the specific purpose for which the facility is designed and what risk goods (such as footwear, walking sticks, poles, bicycles or vehicles) must be cleaned and sanitised at the facility. This rule needs to be complemented by education and provision of supporting information and infrastructure to strongly encourage voluntary compliance – and to build a culture of good forest use, with behaviour change and social science work being key to informing this activity.
Rule 11 – Open Tracks and Roads to Meet Standards	Policy Intent
The owner of the land in a kauri forest area on which a track or road, including a public road, passes through the kauri forest area and the track or road is open to the public at any time, whether with or without charge, must have managed the risk of Pa spread that may arise as a result of the transport of soil on feet or other items including tyres to, within, or from any kauri hygiene zone by having taken one or more of the following measures: a) Re-aligned or having tracks or roads avoid passage within any Kauri hygiene zone; b) Installed cleaning stations for removal of soil and plant material from feet and articles and tyres; c) Installed track surfacing to minimise the potential for soil particles to be carried by feet or other articles or tyres into, within or from a Kauri hygiene zone, or for feet and articles	The intent of this rule is to ensure all tracks and roads open to the public within kauri forest areas are constructed and maintained to a minimum consistent standard. This is in order to minimise the risk of Pa spread to, within, or from kauri forests. a) ensure existing adverse effects on a kauri tree arising from the presence of the track or road are not increased; b) ensure any existing adverse effects on a kauri tree arising from the presence of the track or road are not increased, and where practicable, any adverse effects are reduced by the implementation of best practice for track or road construction; c) ensure any activity for the construction or modification of a kauri forest track or road undertaken shall be undertaken in accordance

to come into physical contact with kauri fibrous roots. Including by having: i) Installed structures that separate feet and other articles or tyres from direct physical contact with soil or kauri fibrous roots; and/or ii) Provided a cushioning separation layer over kauri root zones; and/or iii) Provided elevated structures (boardwalk, staircases, and platforms); and/or iv) Filled excavations or root plate severances with suitable medium to facilitate root plate re-establishment. And d) re-directed groundwater and surface water drainage to direct away from kauri; Failure to comply with this rule is an offence.	with an approved plan under Rule 4 (Obligation to have an earthworks management plan); and d) regularly inspect and where necessary, carry out track or road maintenance to ensure the requirements of these rules for minimising the risk of spread of Pa and the limitation of adverse effects on kauri trees continue to be met. The intent is this rule includes tracks on public land, private land, or lands of any other tenure, and includes walking, running, biking, 4WD tracks and roads that are public roads. It is not the intent to make landowners responsible for informal tracks that they are either not aware of or are aware of but have undertaken measures to restrict public access to.
Rule 12 – Kauri Protection Areas	Policy Intent
Kauri Protection areas are areas containing kauri that are determined by the management agency to have one or more the following criteria: i. important genetic variability within kauri and species dependent on kauri; ii. iconic kauri trees or stands; iii. kauri trees or forests of significance to mana whenua that have tangible and intangible cultural values in association with historic events, occupation and cultural activities; iv. old growth kauri (not significantly modified) with nationally significant ecological values If the agency declares an area to be a kauri protection area-	This rule allows a special designation for certain parts of a kauri forest. The legal consequences of being a kauri protection area are that it applies the management plan rules and stock exclusion rules immediately, but there may be significant administrative and educative or presentational advantages to having areas designated as kauri protection areas. The intent is that the land status would be communicated to the land owner in writing. The policy intent is that the boundaries would be set by the management agency or authorised person. The intent is that this rule can apply to lands of any tenure, but that this rule would only be applied to private land (ie. any lands other than public lands) with consent of the landowner(s). The policy intent is that notice is given in accordance with s 164A of the Biosecurity Act 1993 (includes in person, email, fax and by post) and section

a) kauri protection areas are to be considered kauri forest areas for the purposes of the rules applying to kauri forest areas; and b) the owner/occupier of the land must have and implement a Pa risk management plan that complies with content requirements in Rule 4; and c) owners of farm stock must exclude farm stock from the kauri protection area on the same terms as in Rule 7. The protection boundaries set by the management agency will take into consideration: a) hydrology and land characteristics, including the degree of physical isolation or natural barriers, which influence the potential for Pa to spread; b) pathways for spread of Pa, including the extent to which pathways connect areas of kauri forest and influence the likelihood that Pa will spread between them; [note where 'pathway' has the same meaning as defined in the Biosecurity Act] c) land use and frequency of use, including the likelihood that Pa can be spread due to activities associated with the land use; d) the need for a buffer area to preclude or control activities that could result in natural spread of Pa into, or from, the area of kauri forest or any other suspected hosts of Pa; e) whether achieving objectives is technically feasible and affordable; f) the perspectives of mana whenua, local communities and existing land-owners and managers; g) the level of co-funding by landowners or other funders. Failure to comply with this rule is an offence.	164A(2) which enables service to be effected by leaving the notice in a conspicuous place if the person cannot be found. The notice must state the period that: stock must be excluded – i.e the reasonable time period (as per rule 7); and the date the person must have a Pa RMP by – i.e no less than 90 working days (from date of service) and be reasonable (as per rule 4).
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Kauri Protection areas

'Kauri Protection areas' are kauri forest sites with special values that warrant a higher intensity of management and protection.

It is proposed that kauri protection areas and their boundaries be determined and established by the management agency, having regard to specific criteria and partnership with mana whenua.

The primary kauri protection area criteria the management agency would have regard to include the protection of:

- i. important genetic variability within kauri and species dependent on kauri;
- ii. iconic kauri trees or stands;
- iii. kauri trees or forests of significance to mana whenua that have tangible and intangible cultural values in association with historic events, occupation and cultural activities;
- iv. old growth (not significantly modified) forest;
- v. nationally significant ecological values.

In addition, when considering whether to establish a new kauri protection area and determine a kauri protection area's boundaries, the management agency would also take into account the following secondary criteria:

- hydrology and land characteristics, including the degree of physical isolation or natural barriers, which influence the potential for Pa to spread;
- pathways for spread of Pa, including the extent to which pathways connect areas of kauri forest and influence the likelihood that Pa will spread between them; [note where 'pathway' has the same meaning as defined in the Biosecurity Act]
- land use and frequency of use, including the likelihood that Pa can be spread due to activities associated with the land use;
- the need for a buffer area to preclude or control activities that could result in natural spread of Pa into, or from, the area of kauri forest or any other suspected hosts of Pa;
- whether achieving objectives is technically feasible and affordable;
- the perspectives of mana whenua, local communities and existing land owners and managers;
- whether landowner consent has been given to establish a kauri protection area, in the case of kauri protection areas on lands other than public land;
- the level of co-funding by landowners or other funders.

Details of the decision-making process, including detailed criteria and process for engagement with hapū/iwi, land owners or managers, local communities and other stakeholders, will be captured in a policy on kauri protection areas to be maintained by the management agency.

The proposed boundaries for kauri protection areas may change over time, for example, if the disease and health status significantly change in an area of kauri forest, or if new information on the values at a

site arises. The boundaries of kauri protection areas will be mapped with hapū/iwi made available online by the management agency.

22. The rules whose contravention is proposed to be an offence under the Biosecurity Act 1993 [s.61(2)(i)]

It is proposed that the contravention of all rules in section 21 of this proposal be an offence under the Biosecurity Act 1993.

It is proposed that the contravention of rules 9 and 10 be considered as infringement offences pursuant to s.165(14) of the Biosecurity Act (i.e. under a Biosecurity (Infringement Notice) regulation).

23. The management agency [s.61(2)(j)]

The preferred proposed form of the management agency to administer and implement this proposed NPMP is the Ministry for Primary Industries, a Crown department. The alternative option consulted on was for the management agency to be a Schedule 4A (of the Public Finance Act 1989) Crown Company department.

24. The means by which it is proposed to monitor or measure the achievement of the plan's objectives [s.61(2)(k)]

Performance measures will be included in an annual operational plan that implements the NPMP. The following measures will be used, these can be amended over time as needed, to monitor achievement of the plan's objectives:

- A. Increased understanding in the distribution of Pa across kauri lands;
- B. Increased resilience of kauri forests in response to Pa;
- C. Increased public and industry engagement in the management of Pa
- D. Improved access to capability, knowledge and tools to support effective management of Pa;
- E. Increased presence of physical Pa spread mitigations;
- F. Level of compliance with NPMP requirements.

In interpreting such measures, it will be important to take into account the following:

- That the current distribution of Pa will be substantially greater than that presumed from tree symptomology, meaning disease expression will continue to grow over the next 20-30 years. And there is likely to be a lag phase (as much as 20-30 years) before the full effects of current management are observed.
- That control of Pa is only one of the factors that influences the health of kauri forests (other factors include other pests and pathogens, climate and land use).

An education, awareness and enabling approach will be employed as the initial approach to NPMP compliance and uptake.

Additional measures that relate to day to day administration of the management agency (e.g., financial performance) and implementation model (e.g., effectiveness of regional coordination) will be set by the management agency board (or equivalent governance entity).

25. The actions that it is proposed local authorities, local authorities of a specified class or description, or specified local authorities may take to implement the plan, including contributing towards the costs of implementation [s.61(2)(l)]

The actions that it is proposed regional councils may take to implement the plan, including contributing towards the costs of implementing the plan are:

- Involvement in regional coordination, regional compliance and regional implementation;
- Ensuring that all regional council staff and contractors implement effective kauri disease hygiene protocols and comply with requirements of the NPMP – this activity is to be funded by the regional council;
- Actively managing kauri dieback on publicly-owned lands in accordance with the NPMP, where the regional council is the statutory land manager – this activity is to be funded by the regional council, but with ability to apply to the management agency to contribute funding under exceptional circumstances.
- Including appropriate rules and other requirements in regulatory plans administered by council and implementing these, including ensuring consent conditions provide for the effective protection of kauri from Pa and associated compliance monitoring and reporting.

The actions that it is proposed territorial authorities may take to implement the Plan, including contributing towards the costs of implementing the plan are:

- Ensuring that all local authority staff and contractors implement effective kauri dieback hygiene protocols and comply with requirements of the NPMP – this activity is to be funded by the local authority;
- Actively managing kauri disease on publicly-owned lands in accordance with the NPMP, where the local authority is the statutory land manager – this activity is to be funded by the local authority, but with ability to apply to the management agency to contribute funding under exceptional circumstances;
- Minimising the risk of kauri disease spread by regulating earthworks under the Resource Management Act 1991 - this activity is to be funded by the local authority.

The actions listed above for all Councils are subject to implementation planning, including confirmation of operational plans, to ensure funding determinations.

26. The action that it is proposed the Department of Conservation may take to implement the plan

The actions that it is proposed the Department of Conservation (DOC) may take to implement the plan:

- Involvement in regional coordination, regional compliance and regional implementation
- Ensuring that all DOC staff and contractors implement effective kauri disease hygiene protocols and comply with requirements of the NPMP
- Actively managing kauri disease on public conservation lands in accordance with the NPMP, where DOC is the statutory land
- Actively using regulatory tools under Conservation legislation to effectively manage the risk of kauri disease on public conservation lands, including forest and track closures

- Advocating, promoting and educating in relation to kauri disease consistent with DOC's functions under section 6 of the Conservation Act 1977.

Funding of the above activities are yet to be determined.

27. The actions that it is proposed hapū/iwi may take to implement the plan

The actions that it is proposed hapū/iwi may take to implement the plan are:

- Involvement in regional coordination, regional compliance and regional implementation
- Preparing a funding plan for activities identified in the regional implementation plans, including capacity and capability building
- Ensuring that all staff and contractors of hapū/iwi implement effective kauri disease hygiene protocols and comply with requirements of the NPMP – this activity is to be funded by the management agency;
- Actively managing kauri disease on publicly-owned lands in accordance with the NPMP, where co-governance/co-management agreements exist with the statutory land manager
- Actively managing kauri disease on Māori land in accordance with the NPMP, in a way consistent with the aspirations of mana whenua
- Actively managing kauri disease on general land in accordance with the NPMP, by agreement
- Use and apply solutions sourced from Mātauranga Māori for the protection of kauri from Pa
- Carrying out compliance monitoring and reporting appropriated to the effective protection of kauri from Pa – this activity is to be funded by the management agency.
- Self-nominating any other action appropriate to the effective protection of kauri from Pa as and when they feel ready.

28. The basis on which Mātauranga Māori solutions are identified and used by mana whenua to implement the plan

The plan provides a protective framework for mana whenua to identify and use solutions based on Te Ao Māori and Mātauranga Māori. The framework recognises that Mātauranga Māori is unique to each hapū/iwi; and that decisions about its use are at the discretion of mana whenua (tino rangatiratanga).

- Identification –in order to achieve, or support the achievement of any objective, measure or rule, mana whenua may identify solutions based on Te Ao Māori and Mātauranga Māori
- Notice – where mana whenua identifies solution(s) for use as part of an approved kauri disease management plan, notice of the purpose, intention and nature of the solution(s) (i.e. Pa prevention, hygiene solution, treatment application etc.) is to be provided to the management agency.
- Risk management – before the application of any solution is made, an approved risk management plan must be developed and implemented – where this activity is required it will be funded by the management agency

- Protection of Mātauranga Māori from misappropriation – there is no requirement or expectation for the management agency, or other authority, or third party, to be provided with the detail of any Mātauranga Māori solution where doing so would amount to a breach of intellectual property or be contrary to the principles of Wai. 262.
- Provision of information to the management agency, including monitoring and reporting – The provision of information to the management agency, including monitoring and reporting will apply equally to results of Mātauranga Māori based solutions/activities, except that no information or detail about any Mātauranga Māori solution can be required where doing so would amount to a breach of intellectual property or be contrary to the principles of Wai. 262. – where this activity is required is will be funded by the management agency
- Approved Strategic Science Plan - the Management Agency to provide specific funding (subject to availability) to support the Kahui Māori identified in the approved Kauri Dieback Strategic Science Plan. Funding is to cover research priority setting, administration including meeting fees, research extension, development and outreach.

29. The basis, if any, on which the management agency is to pay compensation for losses incurred as a direct result of the implementation of the plan [s.61(2)(m)]

Section 162A of the Biosecurity Act 1993 allows for compensation to be paid when powers under the Act are exercised for the purpose of eradicating or managing an organism, resulting in loss to a person as a result of damage to or destruction of the person's property or restrictions imposed under the Act on the movement or disposal of the person's goods. The NPMP may expressly alter this general compensation provision and determine the circumstances (if any) under which compensation may be provided under s61(2)m of the Biosecurity Act 1993.

It is proposed that compensation is payable only where there has been an exercise of powers that requires the destruction of goods. Compensation payable is for actual value of the goods destroyed (so not any other losses or costs directly related or any consequential loss).

Palt is proposed that the period for making a compensation claim be a year (inclusive) from the date on which the loss was suffered, or a year (inclusive) from when the person ought to have been aware that the loss had occurred. Claims outside this period can be accepted if the person was unable to make a claim within the one year period because of circumstances beyond their control.

Extending compensation beyond this may create perverse incentives that lead to unwanted outcomes. A hypothetical example of this is where a property owner deliberately infects a kauri tree (which would be almost impossible to prove) with a view to then claiming compensation for any costs associated with earthworks or improvements to infrastructure (e.g., driveway, tracks, fencing).

Extending compensation beyond this is likely to be extremely expensive. Compensation can be the most expensive component of a disease programme under a national pest management plan or where other Biosecurity Act powers are used. For example, approximately \$17 million was paid to growers during the early stages of the Psu-V response, and no access to compensation was then provided for in the National Psu-V Pest Management Plan.

It was generally acknowledged during consultation that it was undesirable to divert both resources and focus away from kauri forest protection to compensation claims and associated administration. Although

balancing this was concern relating to impacts on property rights and values, and desire for compensation where landowners incur costs as a result of NPMP implementation.

It is proposed the management agency make some financial assistance available to landowners on a discretionary basis (e.g., co-funding for fencing to exclude stock from kauri forest areas, and in relation to higher levels of protection for kauri protection areas), with the type and level of such funding support the subject of separate Crown funding decisions (i.e. considered by the Minister separately through the confidential Budget process).

30. Information on the disposal of the proceeds of any receipts arising in the course of implementing the plan [s.61(2)(n)]

It is not envisaged that there will be any receipts arising in the course of implementing this plan. In the unforeseen even that any receipts do arise, these would be applied to the costs of implementing this plan.

31. Whether or not the plan would apply to the EEZ and, if it would, whether it would apply to all of it or parts of it and, if it would apply to parts, which parts [s.61(2)(o)]

The plan will not apply to the Exclusive Economic Zone.

32. Whether the plan includes portions of road adjoining land it covers, as authorised by section 6, and, if so, the portions of road proposed to be included [s.61(2)(p)]

The plan includes roads (sealed and unsealed) open to the public that pass through kauri forest areas (which would be subject to proposed rule 8 - refer section 21). And to any earthworks carried out during the repair, maintenance and construction of roads close to kauri (as set out in proposed rule 10, section 21).

33. The anticipated costs of implementing the plan [s.61(2)(q)]

The cost of implementing the plan has two components:

- i) core costs for the management agency; and
- ii) costs for implementing actions in kauri lands.

The cost of running the management agency is being met by MPI, at an estimated \$1.2 million annually, which includes staff based in northern New Zealand and the ongoing cost of kauri protection governance arrangements.

The costs of enabling action on the ground are spread across four pou (or pillars) of kauri protection:

1. Building capability and capacity of Mana Whenua – to lead kauri protection locally
2. Increasing knowledge to underpin management – through enhancing surveillance and monitoring
3. Building rapport and leveraging research efforts – so that management decisions are well directed by science
4. On ground mitigation works – including the development of guides, policies and standards to prevent movement of the pathogen and protect the trees and involvement of people

\$4-8 million annual funding will enable work to be undertaken across the four pou through the annual operational plans.

34. How it is proposed that the costs be funded [s.61(2)(r)]

It was proposed that costs be funded by the Crown, with modest contributions from regional councils (detailed below), and local authorities responsible for funding management costs on publicly-owned lands they administer. The level of Crown funding would be considered by the Minister separately through the Budget process.

Budget 2021 committed \$28million over four years, as part of a \$32million commitment over five years announced by the Minister for Biosecurity at the time of the Budget.

Regional councils covering the natural range of kauri have committed funds to protect kauri in their regions. Within the current Long Term council plans, Northland Regional Council has committed \$7.2 million, Waikato Regional Council has committed \$4.57 million, Bay of Plenty Regional Council has committed \$100,000 and Auckland Council has committed \$50.155 million (excluding capital funding for investment on council owned assets). Auckland's regional and local park network makes the Council the second largest kauri forest manager in Aotearoa New Zealand (the first being the Department of Conservation).

The programme has received limited philanthropic funding previously (e.g., \$80k from Tindall/Aotearoa Foundations in the 2017/18 year). Securing future philanthropic funding will be a task for the new management agency.

35. The period for which it is proposed the plan be in force [s.61(2)(s)]

It is proposed the duration of the plan be 10 years from the date that the plan is made.

The plan will be subject to non-statutory reviews at three-year intervals, or at any other time as determined by the management agency.

36. The consultation, if any, that has occurred on the proposal and the outcome of it [s.61(2)(t)]

Consultation was undertaken as part of the "Accelerating Protection for Kauri" project, which both developed the NPMP proposal and refreshed New Zealand's strategy for managing kauri disease.

This consultation included three formal rounds:

ROUND ONE – this focused on helping get the big picture view for managing kauri disease. And early feedback to inform how the NPMP could best support the work to protect kauri.

ROUND TWO – this presented feedback from round 1, tested a first draft of the refreshed strategy for protecting kauri, sought feedback on a first draft (high level view) of the NPMP, and tested a model for the organisation to implement the plan.

ROUND THREE – this tested the proposed 'Kauri Protection Strategy' and sought views on the proposed national plan and management agency options.

These rounds included both public hui and meetings, and targeted hui and meetings with some specific affected parties. Each round covered a four-week period, with opportunity to provide feedback at hui, meetings, or in advance of or following these, via multiple channels (electronic, written, verbal). All feedback submitted outside of formal consultation rounds was also accepted and considered.

A separate report and associated documentation detailing the results of consultation undertaken during the three rounds above and meetings or feedback received outside of these rounds, including the matters raised and how these matters have been considered, accompanies this proposal.

Revisions to the proposal were drafted in 2021 as a result of confirmed funding levels and changing context. Consultation on the revisions was undertaken by Biosecurity New Zealand with representatives

from hapū/iwi, regional councils and the Department of Conservation. Association were also provided with a copy of the rules prior to the Governance Group consideration them. As part of the pre-Cabinet process, the proposal was provided to Te Arawhiti – Office of Māori Crown Relations; Te Puni Kōkiri, Ministry for the Environment, Waka Kotahi - NZTA, Ministry for Transport, Ministry for Business, Innovation and Employment (Tourism; Science and Research), Department of Internal Affairs (Local Government), Department of Conservation, Ministry for Primary Industries (Te Uru Rakau - Crown Forestry), Ministry of Justice (Offences and Penalties; Human Rights) and comments received on the proposal were incorporated. Forest Owners

These changes retain the scope and intent of the original proposal, while facilitating ease of Order in Council drafting and Plan implementation.

37. Any matter that the national policy direction requires be specified in a plan [s.61(2)(u)]

The following additional matters have been considered in relation to directions on setting objectives, programme description and on analysing benefits and costs:

- Directions on setting objectives - Information to meet the NPD requirements on setting objectives is set out in section 7 of this proposal.
- Directions on programme description – Under the National Pest Direction on Pest Management, the plan must contain one or more of five specified programmes (NPD s5). The proposed NPMP contains the following programmes:
 - *Sustained control programme*- in which the intermediate outcome for the programme is to provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.
 - *Exclusion Programme* – in which the intermediate outcome for the programme is to prevent the establishment of the subject, or an organism being spread by the subject, that is present in New Zealand but not yet established in an area
 - *Progressive containment* – in which means to contain or reduce the geographic distribution of the subject to an area over time.
- Directions on analysing benefits and costs - information to meet the NPD requirements on analysing benefits and costs is provided in section 11 of this proposal, and cost benefit analysis documents prepared by NZIER (as referenced in that section).
- Directions on proposed allocation of costs for pest and pathway management plans – refer to sections 13 and 38 of this proposal.

38. The steps that have been taken to comply with the process requirements in the national policy direction, if there were any [s.61(2)(v)]

The NPD s6 and s7 respectively require that costs and benefits and allocation of costs are made publicly available with the proposal. An updated cost benefit analysis based on the funding in Budget-21 was prepared by NZIER. It was provided to kauri programme members and made publicly available in September 2021.

Glossary/Interpretation

Term	Definition
Alternative Pa host plant	Means any plant species other than kauri identified on management agency's official register of plants as a plant species that can harbour Pa inoculum.
Animal	Any member of the animal kingdom that is— (i) a mammal; or (ii) a bird; or (iii) a reptile; or (iv) an amphibian.
Animal vector	Means any pig, cattle, deer, goat, possum, sheep, donkey, wallaby or horse that is living in a wild state and is not being herded or handled as a domestic animal or kept for farming purposes.
Authorised person	Means a person appointed under section 103 of the Biosecurity Act 1993 as an authorised person for the purposes of this NPMP. Mana whenua endorsement will be sought prior to appointment.
Commercial operators	Means any person operating within a kauri forest area for a commercial purpose.
Cultural harvest	Means the removal of an item for a cultural purpose by mana whenuaPa
Earthworks	A disturbance of soil or earth land surfaces (including by blading, boring, contouring, cutting, drilling, excavating, filling, moving, piling, placing, removing, replacing, ripping, thrusting, or trenching) using tools or machinery.
Earthworks Pa risk management plan	Means a risk management plan entered into under rule 5 between the management agency and the person responsible for earthworks.
Ecologically valuable	Means an area considered by the management agency to have: • important genetic variability within kauri and species dependent on kauri; • iconic kauri trees or stands; • kauri trees or forests of significance to mana whenua that have tangible and intangible cultural values in association with historic events, occupation and cultural activities; • old growth (not significantly modified) forest with nationally significant ecological values.
Farm stock	Any animal (as defined in this NPMP) being held, herded or handled as a domestic animal (excluding farm dogs) or otherwise kept for farming purposes.

KDGG	Means the Kauri Dieback Governance Group
Kauri dieback disease/Kauri disease	Means the disease caused by Pa.
Kauri forest (or kauri forest area)	This means: a) <i>A forest or bushland ecosystem that contains more than 1 kauri. If kauri trees are found on the edge of this area, the kauri forest includes land within 3x the dripline of the kauri trees' canopy.</i> b) <i>Includes lands being regenerated or planted for the purpose of establishing, or revegetating, a kauri forest ecosystem</i>
Kauri forest track or road	Means any part of a track or road in or through a kauri forest area, or that runs alongside a kauri forest area.
Kauri hygiene zone	Means three times the maximum radius of the canopy dripline of a kauri tree whether alive or dead.
Kauri or other alternative Pa host plant material	Means any part (including the seed and other germplasm) of a kauri plant or any other alternative Pa host plant, whether the material is dead or alive.
Kauri lands	The areas covered by Northland Regional Council, Auckland Council, Waikato Regional Council, and Bay of Plenty Regional Council
Kauri plants	Means any living kauri (<i>Agathis Australis</i>) plant in place, or for planting or propagation, including containerised, field grown and tissue culture plants, and parts thereof, including seeds and germplasm.
Kauri protection area	Kauri Protection areas are areas containing kauri that are determined by the management agency to have one or more the following criteria: i. important genetic variability within kauri and species dependent on kauri; ii. iconic kauri trees or stands; iii. kauri trees or forests of significance to mana whenua that have tangible and intangible cultural values in association with historic events, occupation and cultural activities; iv. old growth kauri (not significantly modified) with nationally significant ecological values
Kauri tree	Means any living kauri tree (<i>Agathis Australis</i>)

Locally eliminate	Means to completely remove Pa from a defined local area of New Zealand.
Management agency	Means the management agency as specified in this plan
Occupier	Has the meaning in section 2 of the Biosecurity Act 1993.
Off-track	Refers to any activity (such as walking, running, biking, or operating of a vehicle) In a kauri forest area that occurs other than on a kauri forest track or road.
Pa	Means the primary causal agent of kauri disease, known as <i>Phytophthora agathidicida</i>
Pa risk management plan	Means a risk management plan entered into under rule 4 between the management agency and the occupier of land.
Pathway	As per its meaning under the Biosecurity Act 1993
Person responsible, or responsible person	Means, in relation to a kauri forest area, the person (whether an individual, department, regional authority, iwi authority, body corporate, or any other legal entity) with the current right to determine who may or may not enter the area
Plan	Means the proposed National (<i>Phytophthora agathidicida</i>) Pest Management Plan
Proposal	Means the proposed National (<i>Phytophthora agathidicida</i>) Pest Management Plan
Rāhui	Means a form of tapu restricting access to, or use of, an area or resource
Road	Means any 'road' as defined under the Land Transport Act 1998.
Rongoā	Means traditional Māori healing, being a system of healing that was passed on orally, comprising diverse practices and an emphasis on the spiritual dimension of health.
Special risk area	A Kauri forest, or part of a forest, without Pa detected, that is one or more of the below: i. at high risk of Pa infection; ii. an area that, if infected, would act as an onward pathway for further Pa transmission
Track	Means any form of sealed or unsealed track or path, other than a road, that is used by people to travel on foot, horseback, bicycle, quadbike, or any other form of vehicle.
Treatment	Means any substance or technique applied to protect the health of kauri trees, including chemical, biological control, alternative natural products and traditional Māori medicines.

Appendix 1: Current technical knowledge and assumptions

Our current technical knowledge about Mātauranga Māori and assumptions about contemporary science (including biological, social science and ecological science), on which the draft National Pest Management Plan (NPMP) for *Phytophthora agathidicida* is based are set out below.

Mātauranga Māori knowledge

- How the NPMP is implemented will be just as important as the plan itself. Partnership between crown and local government agencies with hapū and iwi, and strong connections and alignment across the science system will be critical to the success of the NPMP
- Māori consider that health of kauri cannot be ascertained by looking at kauri alone, rather a “ngahere”, or kauri ecosystem approach should be taken.
- Rongoā and kauri cultural health indicators are Mātauranga Māori tools being used by mana whenua as treatments and management tools.
- Rāhui is valid approach to support the management of forests with kauri disease and can be supported by forest closures.
- Mana whenua are the kaitiaki of kauri. Kaitiaki mandated by their hapū/iwi have the capability to act as authorised persons under an NPMP.
- Appropriate protocols must be in place to ensure Mātauranga Māori, Te Tiriti obligations, existing agreements and plans, and Wai262 are respected and protected.
- Mana whenua will endure throughout the timeframe of the kauri protection strategy i.e. beyond 1000 years

Contemporary science assumptions

- The primary causal agent of kauri disease is the fungal-like chromist *Phytophthora agathidicida* (Pa)
- Pa is probably exotic to NZ, introduced within the last few hundred years
- Reducing the increase in the spread of Pa is critical for the kauri disease response
- The use of a 1000 year plus timeframe is appropriate given the age and lifespan of kauri
- Distribution of Pa is sporadic, with many forests known to be infected, but many others likely to be pathogen-free
- The full distribution of Pa is not known. Recorded infections cover much of the natural range of kauri, scattered throughout forest, farm and peri-urban kauri stands from Northland to Auckland to Coromandel
- The distribution of kauri disease within infected forests usually appears patchy and sporadic, reflecting past incursions and subsequent spread from disease foci
- Pa is highly pathogenic on kauri, and trees of all ages can be infected and killed
- Pa is a soil-borne pathogen, with no airborne phase

- Primary infection is probably via feeder roots, with subsequent spread into main roots and lower trunk. Canopy symptoms (yellowing, leaf loss, dieback) may occur before or after trunk symptoms (bleeding lesions/cankers)
- Colonisation is primarily in roots and into the lower trunk, with no evidence of trunk or wood colonisation beyond the visible lesions
- Above-ground symptoms may first appear months, years or even decades after initial tree infection, with longer latent periods for large trees
- The current distribution of Pa will be substantially greater than that presumed from tree symptomology, meaning disease expression will continue to grow over the next 20-30 years.
- Current evidence suggest that most infected trees die prematurely
- Long-term survival of kauri ecosystems is dependent upon prevention of Pa spread to forests that are not currently contaminated
- It is likely that genetic variation in susceptibility is present within kauri germplasm, but genuine resistance has not yet been found
- Oospores are the main long-term survival structures of Pa. Oospores are formed within infected kauri tissues, and are released into the soil as these tissues break down
- Chlamydospores have not yet been observed in Pa, but stromata-like swellings and microtubules have been noted in kauri roots. These structures could contribute to long-term survival and proliferation of the pathogen (M)
- Sporangia are formed in moist soil conditions and these release motile zoospores in wet conditions. Zoospores swim through soil water towards kauri roots, but the distance of this movement will generally only be a few millimetres or centimetres
- Long-distance dispersal of Pa will predominantly be via oospores, carried in infected soil or root material
- Any movement of soil or plant material, including forest duff, from Pa-infested sites has the potential to spread the pathogen
- Oospores can survive within infected plant material or soil for months or possibly years
- Oospores can survive in dry soil, but duration of survival is not known
- Once infected, forests are likely to remain infected for the foreseeable future
- Natural spread rates within infected stands are not known but are likely to be 1-5 m per annum uphill or on flat sites. Downhill spread is likely to be more rapid than uphill spread.
- The kauri disease spread and impact is faster than the timescale required for an evolutionary response from kauri to occur
- The impact of environmental factors (other than pathogen presence) on disease expression is not known
- Diagnostics of infected sites/trees are currently based initially on symptomology, verified by soil testing

- Vectors potentially include anything that moves soil or plant material. Infected soil and spore movement could be passive (such as in water run-off downhill from infected sites), or active (such as in movement of soil on hikers' boots, vehicles, machinery, tools, feral animals such as pigs, domestic animals such as cattle, and movement of infected nursery material).
- The relative importance of these various pathways will be proportional to the volume of soil moved and the frequency and distance of such movement
- The majority of long-distance dispersal is via human activity
- For disease transfer to occur, there needs to be contamination with infected soil or organic matter from a diseased area, and subsequent deposition of that soil or organic matter near a susceptible host tree such as kauri
- Without intervention, Pa will continue spreading
- With effective intervention, Pa will continue spreading, but at slower rates and limited geographic spread
- Avoiding contact with soil (e.g. track closures, raised boardwalks etc.) will minimise long-distance dispersal (if there is good compliance)
- To date, kauri is the only tree known to be susceptible to Pa in the field. However, it is *likely* that there are many other native and exotic plants that can be colonised by Pa, harbouring or proliferating the pathogen without necessarily showing symptoms (i.e. symptomless hosts)
- Currently there are no known cures for kauri disease
- Eradication is practically impossible, except perhaps for very small infections
- Effective use of cleaning stations will reduce the risk of Pa spread
- Treatment options are few, with phosphite injection the only proven treatment to date. But this is a temporary treatment, not a cure
- Other treatments or systems, including chemicals, biological control and Mātauranga Māori could potentially be available in the future, but efficacy is yet to be proven
- There are large gaps in the knowledge of Pa and kauri disease biology (e.g. host range, natural spread rates, latency periods, role of environmental factors, role of other *Phytophthora* species, cultural health indicators, impacts on forest structure) all of which will influence implementation and effectiveness of management practices.

Ecological science assumptions

- Some sites where kauri disease is known to have been present for (30) years do still have kauri trees present/regenerating (e.g. Great Barrier).
- Some plant species are only found in kauri forest. We do not know if these species are dependent on kauri for survival though we expect they will decline if kauri forest declines or reduces in extent. (this may have already started)
- In the one plot-based study available changes in forest composition due to kauri disease are likely (other podocarps such as miro and rimu increased their growth rates as the kauri canopy declined)

- We assume that a healthy, less disturbed, kauri forest ecosystem is more resilient to the impacts of Pa than a forest on a site with a long history of disturbance (...because soil condition and microbial diversity are expected to be higher/better and therefore more suppressive of the pathogen but also because kauri trees are healthier and more able to fight the pathogen).
- Alternative hosts are expected based on pot trials but as yet no research in the wild has detected this. It is not known whether asymptomatic or asymptomatic alternative hosts can harbour or vector Pa in a forest.
- Kauri is a threatened species
- Multiple protection area sites, in geographically disparate regions, are required utilising a variety of seed types, recognising that discussions must occur in the first instance with mana whenua.
- If kauri is lost, we do not know what type of forest will replace it
- We do not know the ecosystem consequences of the kauri disease, e.g., changes in biodiversity, carbon storage (productivity), decomposition rates or nutrient cycling.
- The rhizosphere of kauri in natural ecosystems is not well known. The diversity of a healthy kauri soil ecosystem vs a soil infested with Pa is not known. We expect there are interactions between the natural kauri soil biota and Pa and it is possible that native soil biota may provide antagonistic effects against Pa.
- We do not know if sites with a history of felling, burning or forestry are more susceptible than sites with less disturbance (i.e. pests and weeds and tracks but no clearing).
- We do not know if different successional stages of kauri forest, or different kauri forest types (e.g. pure, kauri/beech or kauri-podocarp forest) are more or less resilient to Pa.
- There are at least six kauri forest associated species that may be *Phytophthora* sensitive based on *P. cinnamomi* sensitive families in Australia (e.g. Proteaceae - *Toronia toru*, *Knightisia excelsa*; Ericaceae - *Leucopogon fasciculatus*, *Leptocophylla juniperina*, *Dracophyllum latifolium* and *D. sinclairii*)
- The role of physiological stressors such as drought or high rainfall on kauri health and disease expression is unknown. Therefore, we do not know if there is physiological resistance to Pa (not just genetic resistance) or ecological variation in susceptibility (spatially or temporally e.g. is Pa found only in environmentally-stressed forests, different aspects, forests on certain soil types or pH levels, forests under drought conditions, etc.)
- It is not known if kauri ecosystems can be restored using resistant forms of kauri, when and if they are identified in pot trials.
- The impact on the kauri ecosystem of phosphite treatment (on individual trees or the soil microbiome) is unknown.

Social science assumptions

- Kauri disease is regarded as a complex problem because of its bio-physical and social complexities.
- Understanding and managing the social complexities surrounding kauri disease is critical for the ongoing management of the disease.

- Kauri disease affects multiple stakeholders from inside and outside the science sectors, who often hold differing perspectives about how the disease or forest should be managed
- Social science research has to date been a very under-researched area in the KDP and has largely focused on compliance around cleaning stations and tracks and public awareness of the disease with the intention of directing human behaviours.
- Fostering effective and meaningful community engagement is dependent on robust social science research and methodologies to inform, guide, monitor and evaluate stakeholder engagement.
- Social science research will need to be integrated into all aspects of the KDP to inform decision-making to ensure it is based on sound, robust and rigorous social science evidence.
- Managing Kauri disease will require affected community and wider public buy-in to the programme.
- Successfully managing kauri disease will require meaningful engagement with affected communities to facilitate their ongoing involvement in programme planning, decision-making and delivery.
- Participatory approaches (including citizen science and action research) are recognised as effective and appropriate approaches that can facilitate meaningful stakeholder engagement as they are known to foster collaborative development of a shared vision to manage complex environmental problems.
- To successfully manage kauri disease, it will be critical to examine and understand human behaviours to understand people's responses to programme tools and strategies so as to enable people to positively contribute to kauri disease management and / or to comply with biosecurity control methods.
- Recent social science research shows that behavioural studies using the ABC (attitude = behaviour = choice) haven't delivered the insights required to effect behaviour change. Understanding social practises (e.g. individual, societal, institutional, regulatory, policy) is needed to understand the drivers of human choice / behaviours so as to develop effective strategies to change behaviours e.g. track design will need to recognise how people use tracks, to design these to facilitate greater user compliance.
- Self-reporting of compliance has been shown to over-estimate rates of compliance (observational studies show that people overestimate their compliance rate).
- Due to the latency of kauri disease, evidence of changed behaviours may not be easily associated with environmental outcomes that show improved kauri survival. This will present enormous challenges for programme communication.
- Forest users' compliance to biosecurity measures is affected by how they associate/identify with the forest and how much controls may limit this association e.g. a person who values their experience of running in the forest may be less accepting of controls that limit their activity than a person who enters the bush for more environmental reasons.
- Effective communication with the wider public is essential to ensure they are informed about the KDP particularly its successes.

- Education of the public to raise awareness will not necessarily increase public support for the programme. People's lack of buy-in is rarely due to them being ill-informed but rather due to larger considerations such as whether they trust the managing organisation, or believe agencies are doing a good job; or feel affected by control measures; or belief that the control measures are making a difference.
- Evidence shows that Information about how people can assist /comply is more useful than understanding details about the science of the disease.
- There is evidence that a forest user's request for more information about the science of kauri disease, is driven more from a need to be convinced to act than a genuine desire to learn more about the disease.
- Regulation can be a useful tool for improving public compliance with control measures, however it should only be seen as one of many tools and "carrot" approaches are usually far more effective strategies than "stick" approaches.
- Communication with the public about the programme will need to be regularly updated to assist with public/stakeholder buy-in. However, as reports of disease spread may actually lead to the public believing that it is not worth complying with management strategies, it will be essential to not over-promise potential successes and to realistically manage public/stakeholder/politician expectations.
- Identifying high risk groups and key target stakeholders will be critical to inform the NPMP.
- Risk assessments and social network mapping/analysis are necessary to identify human induced 'risk' pathways (e.g. through nurseries) and to identify key target audiences.
- Community is not uniform in its views (there are many voices in a community) - just as there are many publics and not one public.
- It is not known if the limited geographical spread of kauri may affect people's association with kauri and therefore their perception of the importance of the disease.
- It will be important to understand how different New Zealanders value Kauri and if they value it as a national icon.
- It will be critical to engage with private landowners; however, evidence shows that private landowners have significant resistance to authorities working on their land as they fear if disease is identified on their land, that this will limit the control they have over their land. The use of "local" intermediary's has been shown to be critical for private owner buy-in.
- Social science research has shown that local community liaisons and "champions" can greatly support kauri disease programmes when working in communities.
- Social science research recognises that successful engagement in communities requires trusting relationships / partnerships where community feel valued participants who can contribute meaningfully to programme planning and delivery.
- A socio-economic impact assessment of affected stakeholders, e.g. concessionaires should be undertaken to properly inform the development of an NPMP as this can identify potential barriers to engagement of affected parties.

- A cultural impact assessment of affected communities is required to be completed to properly inform the development of an NPMP
- Social science evidence is accessed from many sources – e.g. from the literature (through literature review), the grey literature (reports), observations, and from people’s oral narratives (accessed through interviews / focus groups etc).
- It would be beneficial to create a stakeholder register of key stakeholders who hold ‘local’ ‘traditional’ / ‘tacit knowledge’ that does appear in the published or grey literature. It is acknowledged however that some Māori would object to being on such a list. This paradox emphasises the need to also maintain local/personal relationships.
- Gaining a Social Licence to Operate will be required for any new technologies that may be considered for managing kauri disease . This is critical when working in and with Māori communities.
- Gaining social licence to operate requires continued and meaningful conversations with community. It is granted to agencies from community - a bottom up process.
- Social science recognises the importance of the local context e.g. communities in Northland are quite different from those in the Waitakere or Coromandel. Understanding the uniqueness of communities is essential for programme success.
- Social science findings can provide general principles, however because local contexts matter, findings may not necessarily be universal.
- Organisations and agency unwillingness to share information with each other (institutional guarding of their ‘patches’) is already shown to be a major barrier to programme effectiveness.
- Programme success will require Institutional willingness to recognise and value different forms of knowledge and to include these in programme delivery
- Programme success will require Institutional willingness to share decision-making and resources.
- Social science and science view problems from different paradigms that can present both challenges and opportunities for multi-disciplinary work.
- Social science can be the glue that holds the KDP together by providing methodologies and approaches to engagement to facilitate a cohesive transdisciplinary environment for multi-stakeholder collaboration.

Appendix 2. A full breakdown of the different classes of persons (audiences) who are exacerbators in relation to the spread of Pa, and their associated level of risk and residual risk.

<i>Audience</i>	<i>Sub-audience</i>	<i>Commentary in relation to this audience and level of risk</i>	<i>Inherent risk (level of perceived risk in absence of management - 1 lowest to 5 highest)</i>	<i>Residual risk (where are the greatest perceived risks today given current management – H/M/L)</i>
Landowners	Covenants – including those funded through: • Nature Heritage Fund • QEII National Trust • local authorities • Ngā Whenua Rāhui (for Māori land)	• Depends on where they are and proximity to kauri • Landowners more likely to be conservation minded and working with covenant agencies • Although difference between self-imposed covenants cf. those imposed by others (e.g., agreement as part of subdivision consent) • Some multiple use – covenant alongside productive uses • Māori covenant lands used for medicine gathering and other traditional uses • Biggest risk where fences are not in place	2	L
	Māori landowners – noting different types of land holdings, including: • Post-settlement lands • Māori customary lands	• Frequently multiple owners • Often abounds other native forest blocks and multiple use (e.g. native vegetation, forestry, farming)	5	H

	• Māori freehold lands • Forestry trusts in Māori ownership • Farm trusts in Māori ownership	• Settlements often involve return of land but not \$ to be able to deal with land management issues – resourcing an issue • Stocking of pigs in some lands as a food source may increase risk?		
	Farmers	• Particular risk where not fencing in stock & bush grazing • Where PTA is in stock yards and Kauri are in the local environment presents a key risk • Risk is stock movements within and between sites and associated vehicles and machinery	5	H
	Forestry	• Historic NZFS replanting work in forestry blocks a key risk • A lot of knowledge in the forestry sector around disease issues, and strict hygiene standards of its own • Movement of trucks and machinery is key area of risk, on unsealed roads, over larger distances compared to farming • Indigenous forest management practices and sustainable forest management permits relevant	4	M
	Lifestyle and other rural private land	• Less grazing and movement of stock • More conscious of environment and not commercially driven	4	M

		Less aware and capable as land managers		
	Urban/Peri-urban land	- Big differences across urban and peri-urban environments, e.g., Epsom extremely low risk cf. Oratia / Titirangi / Hunua in close proximity to kauri stands - Growth in housing accords and associated developments in peri-urban areas close to Kauri is an emerging risk - Potential risk in terms of PTA contaminated sites on urban properties, which are then a source of infection (kauri may not even be present e.g., if removed or contaminated soil brought on site) - Significant activity and on and off properties that could move soil (e.g., landscape and gardening, building, even mail delivery)	3	M
	Campgrounds, campsites and associated campers - including: - Legal campsites - Freedom campers - Illegal campsites	- Variable – depends on proximity to kauri - Illegal campsites within kauri forest areas such as Waipoua a significant issue - Activities associated with users of campsites are the risk (walking, MTB etc.) cf. act of camping itself - A number of camping areas in kauri forest areas (e.g., DOC and Auckland Council administered campgrounds, private Christian campgrounds)	2	L
	Crown landowners – Primarily DOC, noting numerous other departments own and/or	Large risk given scale – large areas of high value kauri forest	5	H

	administer land (e.g., LINZ, NZTA, Ministry of Education etc.)	• Higher risk given greater public access • High risk given off-track use by staff and contractors • Higher risks given Crown landowner priorities and diminishing funding • Poor connection within agencies and associated risk of low kauri disease awareness • Really there is DOC vs other Crown landowners, and the big risks are associated with public conservation lands and DOC's diminished resourcing (others are a 1)		
	Territorial Local Authority landowners	• Higher risk given public access and lower level of resourcing and political interest in conservation / Kauri disease issue • Risk associated with local sports park and water catchment management is high • Growing area of risk as level of political support and resourcing has diminished for some councils	5	H
Infrastructure/ Construction / Civil contractors	National roading and infrastructure – NZTA and its contractors	• Risk is machinery, excavators and equipment moving soil in close proximity to kauri forests - large scale soil movement • Risk is site specific (proximity to kauri and PTA) • Includes cleaning up slips as well as repairs, resealing and new road construction	2	L

		• Extreme weather events a key area of risk (e.g., attention to hygiene goes out the door) • National highways cut through significant areas of kauri forests • NZTA doing a great job and well resourced, • Some big operators, such as Fulton Hogan, with strong willingness to comply and good in-house capability/systems – so a very manageable risk		
	Regional and Local roading and infrastructure	• Risk is machinery, excavators and equipment moving soil in close proximity to kauri forests - large scale soil movement • Risk is site specific (proximity to kauri and PTA) • Includes cleaning up slips as well as repairs, resealing and new road construction • Extreme weather events a key area of risk (e.g., attention to hygiene goes out the door) • A lot of local roads cut through kauri forests • Regional land transport agencies and local authorities are not so good – less compliant, not as well resourced, lesser systems and capability cf. NZTA	4	M
	Mining – including for: • Metals	• DOC conditions in place where mines are on public conservation lands • RMA conditions	3	M

	• Coal • Gravel and aggregates • Kauri gum • Peat	• This would be major in Northland if it came up, and is a growing issue in some regions • Source of aggregate for track building important, particularly as mines away from kauri lands are exhausted (e.g., Winstones Three Kings) and supply shifts to other mines (e.g., Whakatiwai and Hunua) • Most consents are historic and have no KD conditions, however, most mines have protocols and systems to deal with soil/dirt to keep this off roads, so this may reduce risk • Lack of scientific certainty around risk associated with mining • Small-scale footprint		
	Exploration associated with mining	• DOC conditions in place where exploration takes place on public conservation lands • But what about private lands where DOC is not involved? • Involves accessing remote country and moving equipment via vehicles (higher risk) or helicopter (lower risk)	4	M
	Power lines and telecommunications	• Laying cables – digging and moving vehicles, machinery and equipment • Monitoring / Inspection / Repairs • Access some remote areas/adjacent to kauri forests	4	M

		• Very few controls / largely do whatever they want • Risk may further increase with development of new National Environmental Standard under RMA that proposes even more discretion		
	Developers	• Some areas with a lot of property development and kauri (e.g., Mangawhai, Oratia, Titirangi, Hunua) • Developers working across sites - region-wide transfers of machinery, equipment, soil • RMA application patchy and light overall, with little or no monitoring • Effectiveness of risk management process has high dependency on RMA effectiveness, which is vulnerable to political influence / selection of commissioners • Footprint (areas where land development and kauri coincide) is relatively small	4	M
	Other contractors - including: • Fencers • Earthworks	• Other contractors using vehicles and equipment that comes into contact with soil working in kauri areas present risk	4	M

Freight / Logistics	Including: • Ports • Distribution centres/hubs • Freight carriers – road and rail	• General freight and logistics operating on sealed roads and typically in urban/industrial context <i>[Note: Trucks machinery and equipment associated with farming, forestry and any earthworks in close proximity to kauri are the issue (this risk is captured under the relevant headings above)]</i>	1	L
Nursery and garden industry	Nurseries	• Big difference between large professional nurseries/industry certified (FMS certification by NGINZ), through to community nurseries and backyard nurseries • Historically known to be an issue/source of PTA spread and unregulated • Nursery stock are potential vectors given inputs (both soil and plant material) • Main area of risk is revegetation planting close to or within kauri stands on private land and by community groups • Illegal harvesting of seed an issue	4	H
	Arborists	• Pruning and dead tree removal / contamination of equipment (sterilising?) • Generally arborists are good and cooperative when aware of KDP, with some trying to educate themselves and their industry – but level of awareness still can be improved	3	L

		• Hi risk if illegally milling trees		
	Landscape	• Unregulated movement of soil and equipment between sites • More landscape activity in urban/peri-urban context and lower risk where remote from kauri. But some urban/peri-urban areas with or close to kauri stands where this is a significant risk (e.g., Oratia, Titirangi, Hunua)	2	M
	Compost	• Unsure – depends if PTA survives composting process (science question?) • Can eliminate risk through effective heating during composting process (oospores killed at 50 degrees)	1	L
Beekeepers		• Low risk associated with vehicles when moving hives between sites • Beekeepers have a preference for hard roads where possible, including for forest areas with mānuka cf. kauri forests	2	L
Community groups	Includes groups participating in restoration, revegetation, track development and maintenance and/or pest control	• Variable – some groups are very proactive while others are “gung ho” • Big difference between national community groups with a formal/managed link to KDP, compared to smaller groups, well-intentioned with no link to KDP • This audience needs to be constantly reminded	4	H

		- Community initiatives like Kauri 2000 involve significant kauri planting and associated risk - Schools (Arbor Day) important from risk and community education perspective - Do these groups travel around or only go to “their own patch”?		
Tourism operators	Includes: - Legal/official operators concessionaires - Illegal/unofficial operators	- Frequently accessing high value kauri forests and areas with PTA, and moving between sites - Variable hygiene practice depending upon quality of operators - Legal operators issued permits that typically include KD conditions - Tourists groups on buses lower risk – tend not to go beyond the car park - Those running sporting events are vigilant - Some very onto it and evidence that tracks used by tourism operators have much high level of compliance with cleaning station use (based on volumes of trigene used)	4	L
Kaitiaki	Cultural uses of kauri forests, such as monitoring and gathering rongoā	- Settlements include remnant kauri forests available for cultural uses - Small number engaged in this activity, typically harvesting from areas close to roads	3	L

Recreation/ Leisure	Mountain bikers	• Similar profile to walkers/runners • Generally stick to tracks • Generally clean bikes on-site if there are facilities available, and between rides	5	H (off-track users higher than track users)
	4WD	• Not interested in rules or conservation and use kauri lands • Generally don't go into infected areas • Limited numbers of 4wd'ers and limited access/places they can go	5	H (off-track users higher than track users)
	Walkers/Runners	• Large numbers of users/scale of activity • Backcountry more likely to go off-track	5	H (off-track users higher than track users)
	Horse treks	• Some horse trekking operations using or in close proximity to kauri lands • Risk of soil movement on hooves	4	H (off-track users higher than track users)
	Geocachers/Orienteers	• Off-track users • Small in number/scale • Low level of awareness or concern – do as they please • Not allowed on public conservation lands, but likely to just use areas whether allowed or otherwise	4	H (off-track users higher than track users)

	Hunters – Deer, Pig, Goats	- Off-track users moving sometimes large distances and between sites - Hunters seen as part of the solution by some – “eyes on the ground” - No evidence of hunters spreading PTA	5	H (off-track users higher than track users)
Agency staff, scientists and contractors	KDP programme staff and scientists	- Moving between kauri sites with and without PTA, so very high risk - Level of discipline/attention to hygiene is not as good as it should be - Some doubts around effectiveness of cleaning and sterilisation with trigene – it’s hard to clean effectively and there is a level of residual risk	5	M
	Weed control/pest control staff and contractors	- Off-track and widespread activity - Are KDP hygiene measures in contracts – should be	4	H
	Other agency staff and contractors – including: - Flood protection / Soil management – “Engineering and Works” - Building inspectors - Park rangers	- Very high risk if working around kauri, but some are not often in areas where kauri are present - Variable level of awareness and degrees of acceptance – at the end of the day some other parts of agencies have commercial drivers - High risk around emergency events - Direct soil movement on people, vehicles and equipment	3	H

		Potential for downstream spread issues		
	Other scientists and professional consultants	- Typically good with hygiene, but high inherent risk as working in PTA infected areas - KDP hygiene measures typically a condition of permit (although no checking of this)	4	H
People illegally harvesting kauri timber and swamp kauri		- Very high risk - Enforcement shared between DOC (public conservation lands) and MPI (timber on private lands and swamp kauri for export) - Difficult area – if can't catch them illegally harvesting not going to catch them avoiding hygiene responsibilities	5	H *Note there is not a lot that can be done to manage this risk

Appendix 3 – Offences Schedule

This document provides further information on the rules for the Kauri Pa National Pest Management Plan rules, as detailed in section 21 of this proposal.

The rules are authorised under s64(5) of the Biosecurity Act 1993 which sets out the purposes for which rules can be included in a national pest management plan.

Each rule is detailed in the following tables, in line with the example table below:

Rule number and title	
Short Description	This sets out a short description of the rule.
Geographical application	The proposed area the rule will apply to consistent with options available under s64(6)(c) of the Biosecurity Act 1993
Proposed offences	The proposed type of offence (regulatory or infringement) and associated penalty are included.
Authority	The authority for the rule within s64(5) of the Biosecurity Act 1993
Impact	Briefly outlines the impact of regulation, including benefits and/or costs. Impacts are discussed further in the proposal and the regulatory impact statement.
Mitigation	Sets out how any negative impacts may be mitigated, where appropriate, beyond the general mitigation and approach to compliance set out below.
Commencement	All rules have an immediate commencement date on the order in council coming into force.

Offences

Each offence will be a prosecutable offence under s154(18) of the Biosecurity Act 1993 and can include a criminal conviction and/or a maximum penalty fine of \$5,000 for an individual or \$15,000 for a body corporate.

Infringement offences

There are two rules that are proposed to be infringement offences: Rule 9 (Obligation to clean items) \$300 and Rule 10 \$400 (Obligation to use hygiene stations).

General Approach to Mitigation

The management agency will develop educational and communications material to support awareness and understanding among people. This will be developed in conjunction with Kauri Protection Programme members.

There will be a graduated approach to compliance and enforcement with an initial strong focus on education and awareness. The graduated approach to enforcement will take into account the activities the management agencies or councils have or have not undertaken in that particular region.

Information for each Rule

RULE 1 - OBLIGATION TO REPORT	
Short Description	Requirement on landowners or occupiers to report kauri disease and potential kauri disease symptoms
Geographical application	New Zealand
Proposed offences	- Failing to recognise that a kauri tree may be exhibiting symptoms of kauri dieback disease - Failing to notify the Management Agency or an authorised person

	Failing to notify the Management Agency or an authorised person as soon as reasonably practicable after first recognising those symptoms
Authority	- Section 64(a) requiring a person to take specified actions to enable the management agency to determine or monitor the presence or distribution of the pest or a pest agent - Section 64(b) requiring a person to keep records of actions taken under the rules and to send to the management agency specified information based on those records. - Section 64(f) requiring audits or inspections of specified actions
Impact	Currently there is no legal obligation to report sightings or suspected sightings (unless specifically asked by an inspector or authorised person under s43 of the Biosecurity Act 1993), this rule therefore increases the circumstances in which there is a requirement to report. However, educational and awareness campaigns to increase awareness about kauri dieback disease and encourage reporting have already been operating in northern New Zealand where kauri naturally propagate, having been undertaken by partners involved in the Kauri Dieback and Kauri Protection programmes.
Mitigation	Targeted resources and engagement with landowners/occupiers in kauri areas particularly those areas that have been identified as not yet having Pa and potentially at a higher risk of getting it.
Commencement	When the order in council comes into force

RULE 2 – PROVISION OF INFORMATION	
Short Description	Requirement for a person to provide information relevant to the management of Pa to the management agency or authorised person when asked in writing.
Geographical application	New Zealand
Proposed offences	Failing to provide requested information to the management agency or an authorised person within the required timeframe
Authority	- Section 64(a) requiring a person to take specified actions to enable the management agency to determine or monitor the presence or distribution of the pest or a pest agent - Section 64(b) requiring a person to keep records of actions taken under the rules and to send to the management agency specified information based on those records.
Impact	Providing information is currently a requirement if asked by an inspector or authorised person under s43 of the Biosecurity Act 1993. This rule (and the NPMP approach) will broaden the circumstances under which information will be requested.

	The designation of the management agency and associated funding, including regional staff and an increased network of authorised persons, will mean there will be more resources available for gathering Pa related information.
Mitigation	Timeframes will be discussed, and extensions given, to the default of 48 hours where reasonable and necessary without increasing the risk/s of further delay.
Commencement	When the order in council comes into force

RULE 3 – RESTRICTIONS ON MOVEMENT OF PLANT AND SOIL	
Short Description	Sets minimum hygiene, record keeping and testing standards for the production of kauri plant material that will be moved between sites.
Geographical application	New Zealand
Proposed offences	For moving a kauri plant or kauri tree between sites when it has not been produced under an approved production plan
Authority	- Section 64(a) requiring a person to take specified actions to enable the management agency to determine or monitor the presence or distribution of the pest or a pest agent - Section 64(b) requiring a person to keep records of actions taken under the rules and to send to the management agency specified information based on those records. - Section 64(f) requiring audits or inspections of specified actions - Section s64(m) requiring the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the disease. - Section s64(n) requiring the owner or person in charge of goods to carry out specified treatments or procedures to assist in preventing the spread of the disease. - Section s64(s) prohibiting or regulating the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest
Impact	The plant nursery industry has been developing voluntary standards and this rule is modelled off that standard. However, the voluntary standard does not currently require end of process testing, as the rule does. The requirements may be difficult for some smaller nurseries or non-profit producers of kauri, including potentially hapū/iwi. There may be an increase in the cost of the production of kauri plants and any increase is likely to be reflected in a change in the cost of a kauri plant or tree.
Mitigation	Communication with NZPPI, who has produced the Plant Pass voluntary standard, has been ongoing, and they are expected to adapt their program to fit rule introduction (i.e. it will include end of process testing in the future).

	There will be a strong focus on working with plant producers and transporters who need to improve their practices to meet the requirements of the rule. There may be support, in limited cases, to support non-commercial entities (such as hapū/iwi based production) with practical steps such as training and/or advice. Clear guidance will be provided on what and when the rules will apply
Commencement	When the order in council comes into force

RULE 4 – OBLIGATION TO HAVE A Pa RISK MANAGEMENT PLAN IF REQUIRED	
Short Description	Requirement for a person to produce, adhere to and report on Pa risk management plan, if requested by the management agency or authorised person.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	• For failing to have a PA risk management plan approved by the management agency or authorised person when required. • For failing to comply with the PA risk management plan as approved by the management agency or authorised person
Authority	• Section 64(5)(h) - requiring the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place; • Section 64(5)(l) - prohibiting or regulating specified activities by the occupier of a place, which deter the presence on that place of organisms that assist in the control of the pest; • Section 64(5)(m) - requiring the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the pest; • Section 64(5)(r) - prohibiting or regulating the use of specified practices in the management of organisms that may promote the spread or survival of the pest.
Impact	The Northland Regional Pest Management Plan includes a requirement for ‘high risk’ property owners to comply with an approved kauri dieback risk management plan. Landowners and occupiers, in general, are currently encouraged to undertake a number of actions to either contain or exclude Pa from a site (see ‘How to Guides’ on the Kauri Protection website). The regulatory requirement to have a specific plan and then carry-out and report on actions will be new for most owner / occupiers.
Mitigation	A template will be developed and staff will work with landowners/occupiers on the development of the plan.
Commencement	When the order in council comes into force

RULE 5 – OBLIGATION TO HAVE AN EARTHWORKS MANAGEMENT PLAN IF APPLICABLE

Short Description	Requirement for an earthworks risk management plan to be produced, adhered to and reported on when earthworks are intended to be carried out within 3x the dripline of a kauri tree canopy. The occupier of the land or landowner are responsible.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	• For failing to have an earthworks PA risk management plan for managing the risk of spreading Pa approved by the management agency or authorised person • For failing to comply with an earthworks management plan for managing the risk of spreading Pa as approved by the management agency or authorised person • Failing to provide in writing the earthworks management plan to any contractors involved in the works • Any contractors failing to implement the requirements of the plan
Authority	• Section 64(5)(h) - requiring the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place; • Section 64(5)(l) - prohibiting or regulating specified activities by the occupier of a place, which deter the presence on that place of organisms that assist in the control of the pest; • Section 64(5)(m) - requiring the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the pest; • Section 64(5)(r) - prohibiting or regulating the use of specified practices in the management of organisms that may promote the spread or survival of the pest.
Impact	This rule will impact those areas that do not currently have an equivalent requirement in their current council plans.
Mitigation	The rule has been limited to only those areas that are close to a kauri tree (3x the dripline). The management agency will provide guidance on which council's requirements are equivalent to this requirement and that compliance with those requirement would be sufficient to meet the requirement of this rule. For those in areas that the council does not have an equivalent rule, a template will be developed for those who will be required to comply with rule to use. This template can then be used attached with other earthwork permissions that are being sought. Where possible, the management agency will be supported by persons within relevant councils who are authorised under the Act to approve earthworks plans.
Commencement	When the order in council comes into force

RULE 6 – RESTRICTION OF MOVEMENT OF THINGS INTO SPECIAL RISK AREAS

Short Description	Restrictions on any person moving potentially infected soil/growing medium, kauri or plant material into areas of particular risk. Either directly or on potential vectors (eg. soil on equipment, clothing etc)
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	Moving any soil or goods with visible soil on them, or Pa host plant material, into an identified special risk area without the prior written approval of the management agency or authorised person.
Authority	Section s64(s) prohibiting or regulating the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest
Impact	This rule is similar to an existing power under the Biosecurity Act (Controlled Area Notices s131 Biosecurity Act). The existence of this rule and increased resources through the funding of the national pest management plan may lead to more sites being regulated.
Mitigation	The area that can be defined as a special risk area is limited and includes areas where kauri is not yet affected by Pa. This will be applied in a targeted manner to ensure the significance of the designation is not diluted. There is an ability within the rule to issue exemptions on specific grounds. Where possible and appropriate other rules (eg. stock exclusion) will be used.
Commencement	When the order in council comes into force

RULE 7 – FARM STOCK EXCLUSIONS	
Short Description	Stock must be excluded from land when the management agency determines their presence risks Pa spread.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	Failing to exclude stock from an area stipulated by the management agency or an authorised person within the required time period stipulated by the management agency or authorised person
Authority	- Section s64(m) requiring the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the disease. - Section s64(n) requiring the owner or person in charge of goods to carry out specified treatments or procedures to assist in preventing the spread of the disease.
Impact	It is possible that some grazing areas may be reduced. Exclusion of stock may often require a new or significant improvement in fencing which has a cost.
Mitigation	A significant area of kauri is in public non-stock grazing areas. Matters that must be taken into account when declaring an exclusion area include ensuring that the

	risk associated with stock movements is considered alongside/within context of the overall level of risk and risk management.
Commencement	When the order in council comes into force

RULE 8 – PROHIBITION ON THE RELEASE OF ANIMALS

Short Description	Restricts any person from releasing animals into a kauri forest or adjacent areas where it is reasonable to assume it could enter the kauri forest.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	• Releasing an animal in, or into, a place where it could reasonably be expected to get into a kauri forest area • Causing to release an animal in, or into, a place where it could reasonably be expected to get into a kauri forest area
Authority	Section s64(s) prohibiting or regulating the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest
Impact	The release of animals on to public land is already regulated in New Zealand. This rule adds to that regulation but with a particular focus on kauri forests and including private areas.
Mitigation	The rule excludes farm stock. Work will be undertaken to update existing guides currently on kauri protection website.
Commencement	When the order in council comes into force

RULE 9 – OBLIGATION TO CLEAN ITEMS

Short Description	Individuals must clean items that come into contact with the ground when entering and exiting kauri forests
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	• Failing to clean items that have or may have come into contact with the ground immediately before entering a kauri forest area • Failing to clean items that have or may have come into contact with the ground immediately after leaving a kauri forest area In addition to being an offence under s154(18) of the Biosecurity Act 1993. This rule is also proposed to be an infringement offence under section 165(14)(c) and (f) of the Biosecurity Act 1993. Infringement fee of \$300.

Authority	Section s64(s) prohibiting or regulating the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest
Impact	Cleaning items has been a requirement in those areas where a controlled area notices under s131 of the Biosecurity Act are in place. In other areas, this regulatory requirement will be new. It will not reduce forest use or access in and of itself, however it will impact on the actions that individuals are required to take.
Mitigation	This rule will be complemented by working closely with hunters and community groups to build a culture where good hygiene, keeping away from kauri tree roots, and reporting symptoms are a routine part of off-track use. And, by inclusion and monitoring of hygiene requirements within contracts, concessions, permits or other forms of agreement with commercial off-track users.
Commencement	When the order in council comes into force

RULE 10 – OBLIGATION TO USE HYGIENE STATIONS	
Short Description	Hygiene stations must be used by a person when present.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	- Failing to use a hygiene station where there is one at the entrance before entering a kauri forest area - Failing to use a hygiene station where it is present when leaving a kauri forest area In addition to being an offence under s154(18) of the Biosecurity Act 1993. This rule is also proposed to be an infringement offence under section 165(14)(c) and (f) of the Biosecurity Act 1993. Infringement fee of \$400
Authority	- Section s64(n) requiring the owner or person in charge of goods to carry out specified treatments or procedures to assist in preventing the spread of the disease. - Section s64(s) prohibiting or regulating the movement of goods that may contain or harbour the pest or otherwise pose a risk of spreading the pest.
Impact	Hygiene stations have been in place at the entry/exit points of some tracks and their use has been strongly encouraged. This rule will increase the risk of not using the hygiene station due to the possibility of a fine.
Mitigation	Significant efforts will go into awareness and strongly encouraging voluntary compliance.
Commencement	When the order in council comes into force

RULE 11 – OPEN TRACKS AND ROADS TO MEET STANDARDS	
Short Description	Owner of public tracks or roads that are in/through/adjacent to a kauri forest area must have certain features to limit the spread of Pa.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	Failing to have managed the risk of Pa spread by not having undertaken at least one of the actions set out in a-c and d as set out in the rule.
Authority	Section 64(5)(m) - requiring the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the pest
Impact	Significant work has been undertaken by Councils and Department of Conservation to reduce the risk of Pa spread already on public land. However, more work is required. The cost of compliance is significant. NZTA support the rule applying to public roads.
Mitigation	Further development of track standards and guidelines to support good development and management practices. Working with landowners and land managers to support the identification of priority work and an implementation plan for achieving that work over a reasonable time period. Identifying what other nearby existing tracks or opportunities are to enable users to have a similar experience elsewhere while tracks are being realigned or upgraded.
Commencement	When the order in council comes into force

RULE 12 – KAURI PROTECTION AREAS	
Short Description	Requiring the owner of farm stock to exclude them and restrictions on landowner/occupiers in the movement of potential Pa vectors in 'Kauri Protection Areas'.
Geographical application	Northland Regional Council, Auckland Council, Waikato Regional Council, Bay of Plenty Regional Council
Proposed offences	- For failing to have a PA risk management plan approved by the management agency or authorised person - For failing to comply with the PA risk management plan as approved by the management agency or authorised person - Failing to exclude stock from an area stipulated by the management agency or an authorised person within the required time period stipulated by the management agency or authorised person
Authority	Section 64(5)(h) - requiring the occupier of a place to take specified actions to eradicate or manage the pest or a specified pest agent on the place;

	• Section 64(5)(l) - prohibiting or regulating specified activities by the occupier of a place, which deter the presence on that place of organisms that assist in the control of the pest; • Section 64(5)(m) - requiring the occupier of a place to carry out specified treatments or procedures to assist in preventing the spread of the pest; • Section 64(5)(r) - prohibiting or regulating the use of specified practices in the management of organisms that may promote the spread or survival of the pest.
Impact	The impact of this rule is positive in that it enables an area to be designated a protection area which may present significant administrative, educative or presentational advantages to having areas designated as protection areas. This is in addition to the impacts noted in Rule 4 and Rule 7 which apply here equally.
Mitigation	It is proposed that any proposals to declare private land to be a protection area is only done with the consent of the landowner/s.
Commencement	When the order in council comes into force