



Photo: Bert Bourgeois

KauriKonnnect is the quarterly newsletter of the Kauri Dieback Programme, a collaborative partnership between tangata whenua, The Ministry for Primary Industries, The Department of Conservation, Auckland Council, the Waikato Regional Council, the Northland Regional Council, and the Bay of Plenty Regional Council.

KauriKonnnect

Saving kauri up to us, not them

There are some things in life that you have no choice but to leave to others to take care of. For instance, if you're on a plane that's about to crash, you can only hope the pilot is doing all they can.

Thankfully, kauri dieback is not one of those situations. Kauri will be saved from dieback, and it will be everyone – landowners, communities, tangata whenua, scientists, industry, recreational and sporting groups, central, regional and local government, and you – who will do it.

This edition of *KauriKonnnect* is full of examples of how a range of people and organisations are doing all they can – within their areas – to save kauri. When staff working on the Pūhoi to Warkworth roading project realised that there was no off-the-shelf product they could use to clean their geotech equipment, they designed and built their own portable, enclosed wash station.

Meanwhile, the Far North iwi Te Rarawa is ensuring all consents issued for work that will take people near kauri within their rohe

include an agreement to comply with kauri dieback protocols. The Chinese Conservation Education Trust has been running stalls outside specialist Asian foodstores, where shoppers are given the message on the importance of helping save kauri. And the Department of Conservation has designed a high-efficiency cleaning station that will cater to the thousands of people who visit Tāne Mahuta every year. The combined effect of these four initiatives, on top of all else that is being done to help save kauri, will ensure that future generations will be able to appreciate kauri just as we all do now.

The best way to stop the spread of the disease is by cleaning footwear, vehicles and other gear before and after going near kauri, and by avoiding going off track. Like picking up after your dog, or wearing a seatbelt, these have to be “every time, everywhere” actions... in other words, they have to become social norms.

The first person in each community to start picking up after their dog would have only

Saving kauri up to us, not them? continued

made people stare, but the first five would have changed people's behaviour forever – especially once they explained their rationale.

Word of mouth is a universally powerful way to influence behaviour, especially if it comes from within someone's social or work network. If people don't just see other people doing the "thing," but they also hear family and friends talking about it... so walking the talk, as well as talking the talk... there's a good chance they will do the same (so make sure you're seen cleaning your gear, and the next time you're talking with your friends about good tramping tracks, areas for hunting or a good mountain bike ride, mention how you ensure you don't spread

kauri dieback, and how they can too).

Sadly, while it's pretty clear what needs to be done to save kauri, the same can't be said for rata, rōhutu, swamp maire, ramarama, mānuka, kānuka or pōhutakawa. As this *KauriKonnnect* was being written, the news broke that no one wanted to hear – myrtle rust had been found at multiple sites around the North Island. It's already known that the disease poses a serious threat to a range of imported species. The extent of the threat it poses to the endemic members of the myrtle family remains unclear, but it's likely its impact will be significant.

While no other country has been able to stop the spread

of myrtle rust, MPI's and DOC's teams say they have no alternative but to try. So, help them out by keeping an eye on any myrtle species you have on your property, and if you see what you think might be the signs of the disease, don't touch the plant or tree but take a photo, mark the spot if necessary and report it to MPI (on 0800 80 99 66). And of course keep doing all you can to make sure that you and your friends, family and colleagues are doing all you can to save kauri from kauri dieback.

Ngā mihi
Roger Smith
Chairperson
Kauri Dieback Programme Governance Board

Chinese Conservation Education Trust – spreading the word on kauri dieback

Three groups have again been funded this year to advocate within their realm of influence for saving kauri from kauri dieback. They are Te Rūnanga o Te Ngāti Whātua, Te Rūnanga o Te Rarawa, and The Chinese Conservation Education Trust.

As part of this work, volunteers from The Trust have been running stalls outside grocery stores, and talking to people about kauri and kauri dieback, and the need to prevent its spread. The Trust will hold more of these stalls, up until the end of June. So far they have found that many of the people they talk to are not familiar with the issue. However they say that people's responses overall have been very positive, with many saying that they will be sure to tell friends and family about the disease.

There will be a full report on all the groups' activities after the current financial year ends in June.



Photos CCET

Preparing for (and after) an audience with Tāne Mahuta

Until recently, visitors to Tāne Mahuta – the (estimated) 1500 year-old, best-known and largest kauri still standing – were not required to clean their footwear, either before or after seeing the tree.

That puzzled a lot of people, given that – as we all know – cleaning and disinfecting footwear and other gear before and after going near kauri is one of the only ways in which kauri dieback will be stopped.

But there were good reasons for this apparent anomaly, including that the path was replaced by boardwalks some time ago, and visitors no longer come into contact with the ground at the site. Also, it's common for three or four busloads of tourists to arrive at the site at once.

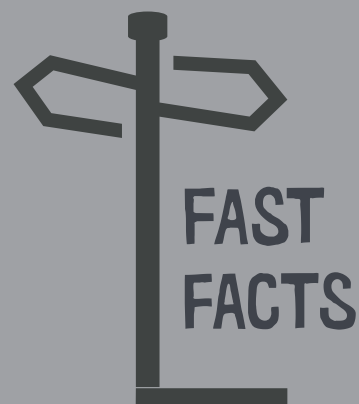
Since tour operators work to tight schedules, installing the usual brush and handheld spray stations wasn't an option, especially since the delays could have led to people going off track to save themselves a wait.

However, since boardwalks are no guarantee against a disease spreading (infected soil could drop between the gaps, or be picked up on someone's footwear and moved to another site), and since it's vital that people form a habit of cleaning each way every time, something had to be done.

Unfortunately, the Waipoua Forest is heavily infected with kauri dieback, and there are symptomatic trees close to Tāne Mahuta (which has never been tested for dieback, since going onto and digging into the tree's root zone would leave it more open to infection).

So, after installing an interim cleaning station at the site in 2015, the Department of Conservation designed a high-efficiency, partly-automated station for the site, based on an earlier design that was trialled at four other sites over the summer of 2015/2016.

Installed recently (see photos next page), the new walk-through station is expected to go a long way towards ensuring that every one of the almost



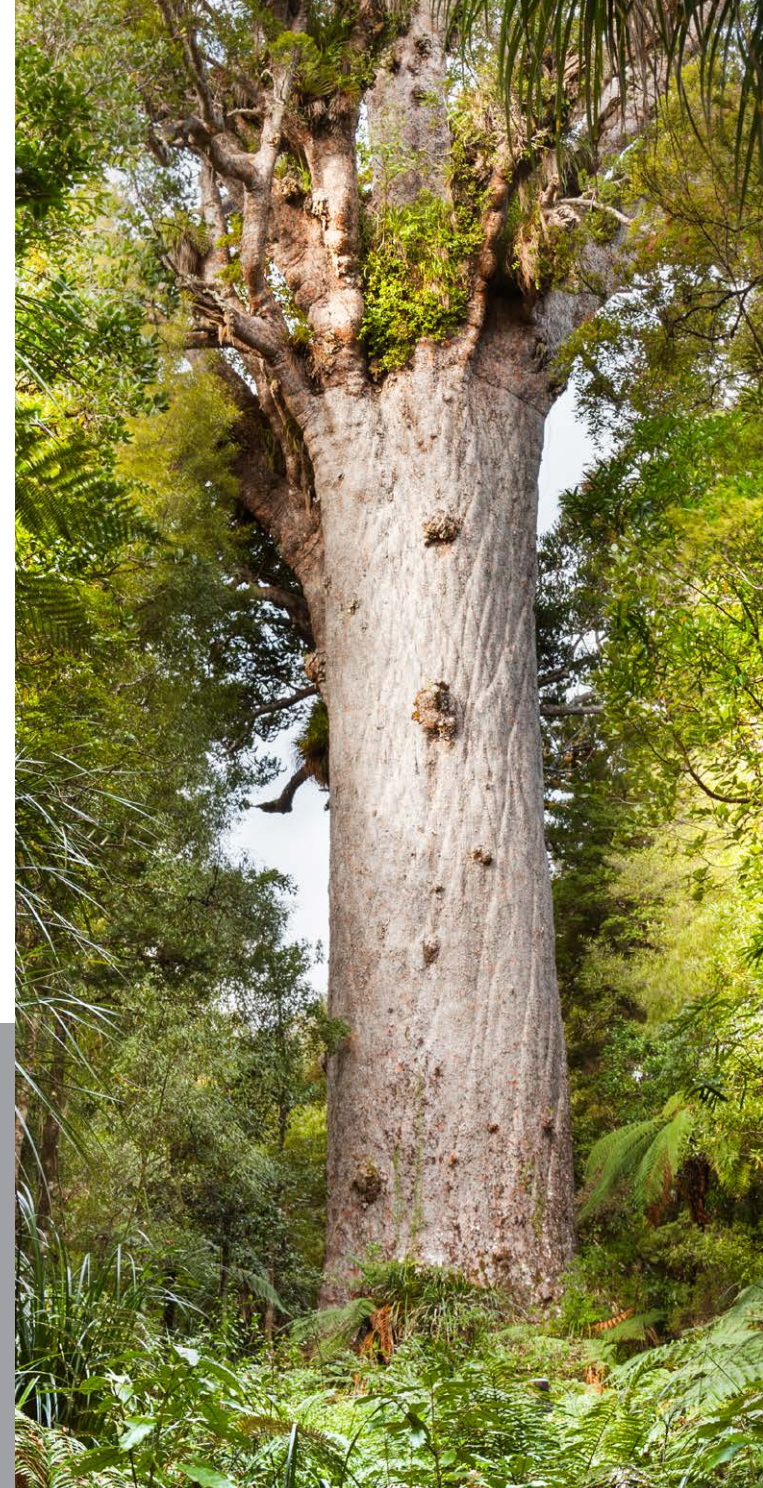
TĀNE MAHUTA

Māori mythology tells the story of how Tāne was the son of Ranginui, the sky father, and Papatuanuku, the Earth mother. As a child, Tāne separated his parents' embrace, and then clothed his mother in the forests that cover much of New Zealand today. All the animals that live in those forests are regarded as Tāne's children.

Tāne Mahuta was discovered in the 1920s while SH12 was being surveyed.

Measurements:

Trunk girth: 13.77 m
Trunk height: 17.68 m
Total height: 51.2 m
Trunk volume: 244.5 m³



150,000 people that visit the site every year arrive at the tree – and depart again – with clean footwear.

As with every other station, users start off by brushing all the soil from their footwear, using brushes set into the floor. The soil is caught beneath the brushes. Users then apply disinfectant by pressing down on a steel plate, creating the pressure that sprays the disinfectant onto the soles of their shoes or boots. The used disinfectant is also collected in tanks. In a first, the station has walls so that any specks of soil that are flicked outwards from the brushes are contained.

The station is designed to be moved, since there are plans to move the entrance to the Tāne Mahuta walking track south, to improve the visitor experience. If it lives up to its promise, it's likely you'll see the design at other high-use tracks around the Upper North Island.

A trip to Tāne Mahuta is a must-do; the sight of the tree never fails to impress upon the visitor just what an incredible species kauri are. Now, you can recommend your friends and family make the trip, knowing that in doing so there's no chance that they will inadvertently cut the tree's long-life short.



The new station during installation. Photo: DOC.



The new station in place. Photo: DOC.



Staying in the kauri loop

Interested in getting the latest research news, great kauri photos, and updates on the fight against kauri dieback?

Just go to the **Kauri Dieback Programme's Facebook** page, "like" it, and you'll start enjoying updates on these topics and others, via your Facebook news feed.

PASS IT ON. Please spread the word by sending this newsletter through your networks via email or print off hardcopies to pass on to those you meet.

Are you new to KauriKonnnect? Go to www.kauridieback.co.nz and put in your details at the bottom of the page – you'll never miss a copy again!

NZTA commits to not spreading kauri dieback during construction of new motorway

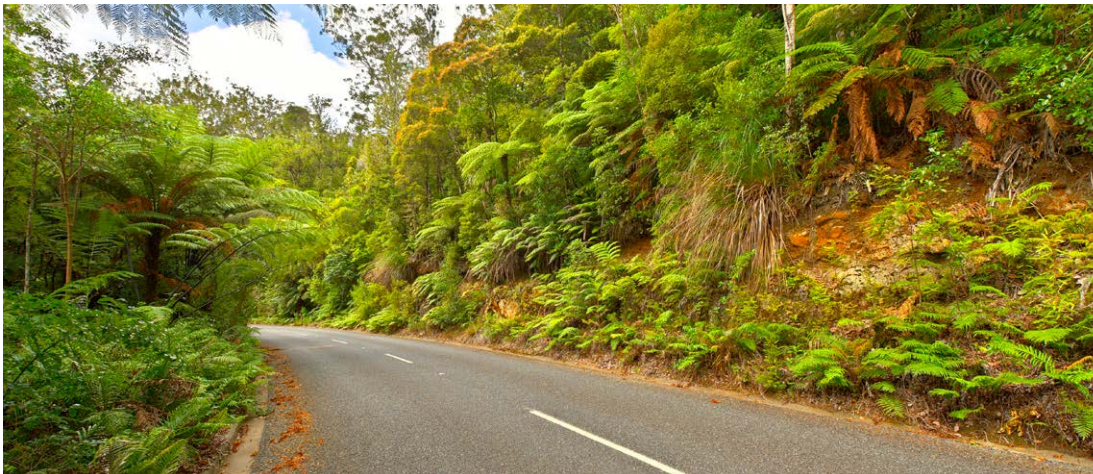
While the construction of the new section of State Highway One between Pūhoi to Warkworth has been planned to have as little impact as possible on the areas of native bush along the route, it is inevitable that many trees will be effected. This will be addressed in part by replanting, at a ratio of 10 trees gained to every tree lost.

But what about the risk of spreading dieback to or from any of the kauri along the route, given the extent of the soil disturbance that will occur during construction?

Fortunately, the New Zealand Transport Agency is well aware of the risks of kauri dieback (after all, the NZTA manages the highway through the heavily-infected Waipoua Forest pictured below), and the agency has had a robust set of procedures designed to minimise the risk of spreading kauri dieback for a long time. However, the challenges inherent in building a motorway while not moving any soil between work areas is requiring solutions for which there aren't any off-the-shelf products.

The agency's engineers have had to overcome one aspect of this challenge in just the survey stage. They did this by designing and building a 4m x 2.8m x 250 mm deep cleaning bay for their geotech drilling equipment, which can be quickly moved between quarantine zones. It is made of polyethylene, and has a triple-layered base. After washing, the rigs are sprayed with Sterigene disinfectant, before the slurry is taken to a Class A landfill.

You'll be able to read about the other measures being taken to avoid spreading kauri dieback during the construction of the road, in future editions of *KauriKonnnect*.



Philanthropists lending a hand to protect kauri on private land

Since kauri dieback does not discriminate between kauri on private land versus kauri on public land, stopping its spread is something that requires action across all of kaurilands, regardless of tenure.

But while a government agency like DOC or a council might have the budget to put in place the infrastructure needed to stop the disease, private landowners usually don't. That's why The Tindall Foundation and The Aotearoa Foundation agreed in 2015 to grant \$100,000 per year for three years, specifically to save kauri on private property.

In most cases, any funding is matched by the landowner. Fencing designed to stop the spread of kauri dieback has been completed on six properties so far, near Dargaville and Whangārei, at Puketotara, Arapohe, Kaiwaka and Waihi, and in the Waipoua Forest.

The Waipoua site, which is adjacent to the Forest's visitors' centre, is a good example of the difference a fence makes.

This site was originally the Te Roroa

Waipoua Native Reserve. It was acquired by the State Forest Service in the 1920s, which then became the New Zealand Forest Service Waipoua Kauri Nursery and Forestry Camp.

While in operation, the nursery sent tens of thousands of kauri seedlings around the country, as part of the research into whether kauri could be commercially cultivated for their timber. At some point the nursery became infected with kauri dieback, after which it is likely that dieback was inadvertently spread to a number of other sites in the process.

After the Department of Conservation was formed, an area office was established, and the nursery operation shut down.

The site was returned to Te Roroa as part of a 2009 treaty settlement package and is now



Te Roroa Manawhenua trustees (from left to right): Chairperson Sonny Nesbit, Operations Manager Snow Tāne, Trustees Cheryl Rahui, Margaret Hand, and Bush Naera. Photo: Will Ngakuru.

home to the iwi's administration, operations and visitors' centres.

The centre attracts approximately 90,000 domestic and international visitors per year, most of whom have either been to or are visiting Tāne Mahuta, as well as other local and iconic kauri, such as Te Matua Ngahere. And since the infected kauri are little more than a stone's throw from the campground and café, and because visitors are – by nature – curious, the former nursery posed a serious risk of spreading the disease.

Now, with the help of the Foundations' grants, a high Hurricane-wire fence surrounds the infected trees, which not only makes it clear that people should not go into the stand, but physically prevents them from doing so.

One of the iwi's spokespeople, Will Ngakuru, says the fence has made a valuable contribution to the fight against kauri dieback.



A boardwalk at Pukemokemoke, shortly before completion.

Philanthropists lending a hand to protect kauri on private land continued

“Te Roroa greatly appreciates the assistance received from The Tindall Foundation and the Aotearoa Foundation, which has greatly reduced the risk of kauri dieback spreading from here to what are the most significant kauri there are anywhere.”

The Fund is not all about fences though. Cleaning stations, signage, and boardwalks are all covered. For instance, a small contribution from the Fund, money from another two providers, and hundreds of hours of volunteer labour successfully combined recently

to complete a track upgrade on a private bush reserve at Pukemokemoke, northeast of Hamilton (see photo previous page).

Measures to protect high-value kauri areas are nominated for funding by the Kauri Dieback Programme’s regional partners. While all the available funding under the Private Land Protection Fund has been allocated, there are still another five projects that are underway or are about to start.

One of those will protect one of the largest stands of kauri that remain in the South Waikato (over 720 trees), at Waikaretu. The stand includes many mature kauri, some of the roots of which are showing signs of having been damaged by the cattle the fence will keep out (see photos).

There will be a wrap-up of all the Fund’s projects in a future edition of *KauriKonnnect*.



The stand at Waikaretu, with fencing materials in the foreground.



Hoof damage on kauri roots in the Waikaretu stand, which will leave the trees even more susceptible to attack by kauri dieback.

Kauri dieback surveillance results positive so far

While you can never assume an area is free of kauri dieback – since kauri can harbour the disease for a long time before they show any signs of it – it's also important to confirm which areas are contaminated.

This information then informs decisions such as which tracks should be upgraded first, or which activity groups need to be worked with and educated in order to reduce the risk of the disease being spread.

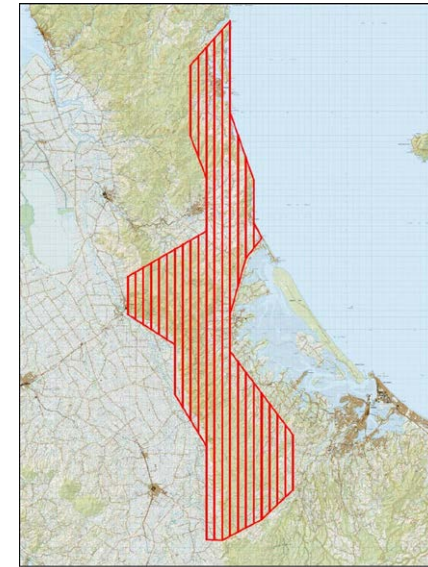
Therefore the Kauri Dieback Programme supports its partners in carrying out aerial surveillance in their respective regions. This is done with an aircraft flying in a grid pattern while on-board high-definition stills cameras record every unit of ground. After the flights are made, any stands of kauri that look as though they are diseased are visited by ground crews for further assessment, and likely soil tests.

The highly methodical approach is necessary in part because it's a tough job spotting symptomatic kauri, as shown in the photos on the right. A separate project, which will map all significant stands of kauri growing across kaurilands, is expected to make the process easier in the future.

So far for the financial year ending June, flights have been made over priority areas in the Waikato (474,720 hectares of a total 2,455,720 hectares – or 19 per cent of the land area); much of the Waipoua Forest and the Mid-North, and the Coromandel and Hunua Ranges. Once the ground visits – and any sampling – has been done, the results (for publicly-owned land) from the surveillance will be posted to the Kauri Dieback Programme's website.



An infected stand of kauri.



A typical flight pattern.



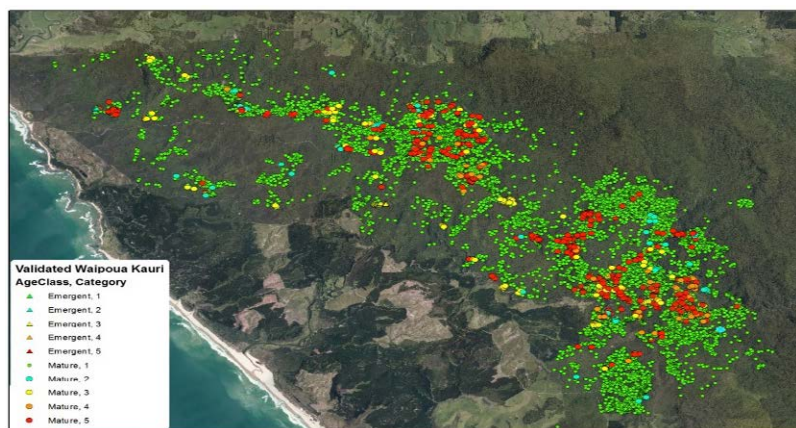
Edward Last, the pilot of the survey plane, about to make another trip.



The cameras set up inside the survey plane.



Spotting kauri from the air can be a challenge.



A sample image from the ongoing all-of-kaurilands mapping project.

Joining up with the global fight against *Phytophthora*

The pathogen that causes kauri dieback is a *Phytophthora*, one of more than 80 described so far around the world. '*Phytophthora*' is derived from Greek, meaning 'plant destroyer.'

Many of the different *Phytophthora* have been known for a long time - one of them, *Phytophthora infestans*, caused the Irish potato famine of the 1840s. Other types of *Phytophthora* cause sudden oak death in the United States, cocoa black pod disease in Africa, and the dieback of olives in Spain and jarrah in Australia. And because the various *Phytophthora* behave in similar ways, there is a lot to be gained from those people overseas who are tasked with managing *Phytophthora* in their home countries.

In March, the Ministry for Primary Industries sent Kim Brown, who works in operations for the Kauri Dieback Programme, to the Eighth Meeting of the International Union of Forest Research Organizations Working Party on *Phytophthoras* in Forests and Natural Ecosystems.

Held every two to three years, the meeting brings together researchers and operations managers to share information on topics such as the latest detection technologies, pathogen genetics, new *Phytophthora* that have been identified, public engagement techniques, and the various approaches to measuring likely biodiversity impacts.

Kim says her highlights included hearing about the ways in which a forest research team in the UK have been investigating, monitoring and improving practices at plant nurseries; the use of portable steam soil sanitisers, which are similar to those being used in the US as an alternative treatment; a field trip to some acacia and eucalyptus seedling nurseries, plantations and adjacent native forests, to view a range of diseases caused by various *Phytophthora* and *Ceratocystis* (a type of fungus); and a soil pasteurisation technique that will be incorporated into some research the Programme has planned for the next financial year. And while Kim was at the conference she gave a well-received presentation on *Phytophthora agathidicida* (the pathogen that causes kauri dieback), and the operational experiences and challenges that come with stopping the spread of the disease in New Zealand – much of which Kim says was relevant to the other people at the conference.



The conference delegates.

SPOT THE DIFFERENCE

Always assume the area you are in is contaminated with kauri dieback. Why?

Take a look at the photos. The tree on the **LEFT** tested **positive** for kauri dieback.

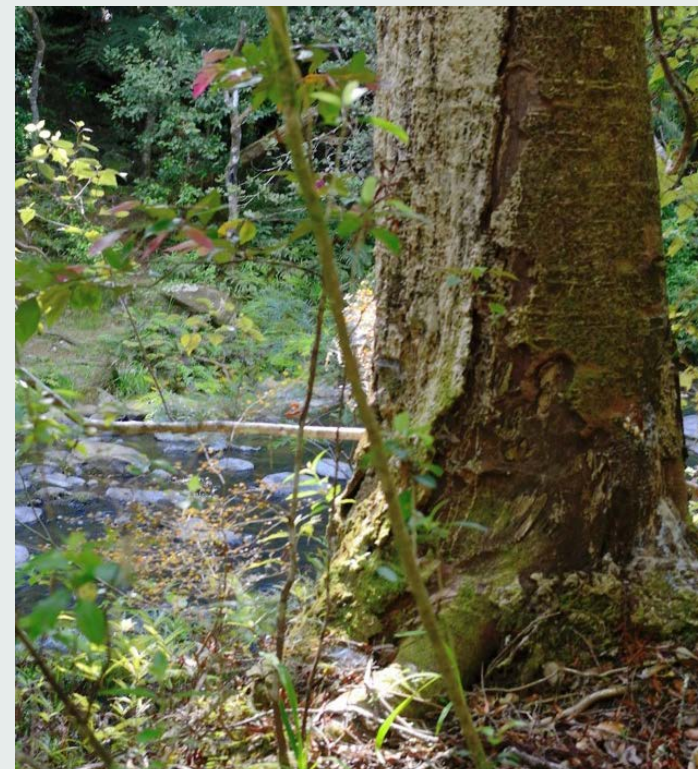
The tree on the **RIGHT** tested **negative**.



The tree on the **LEFT** tested **positive**.

The tree on the **RIGHT** (with the large lesion) tested **negative**...

it just goes to show that you can never tell an infected kauri just by looking at it.



The Kauri Dieback Programme thanks the following partners for their support

If you'd like to help spread the word about kauri dieback to your customers, staff and networks then please contact Ian Mitchell on **029 894 0773** or email **imitchell@doc.govt.nz**.

Coopers Creek

Coopers Creek 'Lone Kauri' brand is an iconic Kiwi wine that has lent its support to the Kauri Dieback Programme. In an innovative messaging alliance, every Lone Kauri bottle helps raise awareness of kauri dieback and what we can all do to stop its spread. They are distributed throughout the Upper North Island and into Asian markets. We feature on their website and Facebook pages and promotional material at tastings, events and point of sale is also helping to spread the word. Cheers Coopers Creek!



Soar Print

As an environmentally sustainable printer, Soar Print are putting their money where their mouth is by providing a generous printing sponsorship to the Kauri Dieback Programme. We're proud to join their portfolio of community programmes which help good things happen.



Bivouac

Thanks Bivouac for getting the kauri dieback message to all your intrepid outdoorsy customers on your Facebook page. We really appreciate you letting us use your communication channels to raise awareness and encourage kauri-safe behaviours in the forest.



SHARE THE NEWS. Got a story to share on kauri dieback? Spread the word in *KauriKonnnect*.

Contact **jay.harkness@mpi.govt.nz** to pass on any news, updates or articles and photos.

If we all contribute we'll make this newsletter even more relevant and interesting!



Kauri dieback is killing our forests



It can be spread
with just a
pinhead of soil.

WWW.KAURIDIEBACK.CO.NZ

TĀNGATA WHENUA | MINISTRY FOR PRIMARY INDUSTRIES | DEPARTMENT OF
CONSERVATION | NORTHLAND REGIONAL COUNCIL | AUCKLAND COUNCIL
WAIKATO REGIONAL COUNCIL | BAY OF PLENTY REGIONAL COUNCIL



KEEP KAURI STANDING
STOP KAURI DIEBACK DISEASE SPREADING KIA TOITU HE KAURI



**1 Clean ALL soil off your
footwear and other gear
EVERY TIME you ENTER or
LEAVE a forest.**



**2 Use disinfectant only
after you have removed
all soil.**



**Stay on track and off
kauri roots.**