

Kauri dieback turning 1000-year-old trees into 'big skeletons'

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JASON DORDAY/STUFF

Tāne Mahuta, in the Waipoua forest, Northland.

Work is underway in Northland's Waipoua Forest to determine just how close kauri dieback is to Tāne Mahuta and whether the forest should be closed. Tāne Mahuta is a giant kauri, aged somewhere between 1,200 and 2,500 years old.

A young kauri was confirmed with kauri dieback just 59m from Tāne Mahuta in May, prompting a team of five scientists, with experts and kaitiaki from local iwi Te Roroa, and support from the Department of Conservation to collect soil samples now the weather has improved.

A rāhui to the forest (as in the Waitakere ranges) was not "off the table" but Te Roroa science advisor Taoho Patuawa said more information was needed before making a decision which could have "massive implications for western Northland."





SIMON SMITH/FAIRFAX NZ

Dr Ian Horner of Plant and Food Research is leading a team of scientists undertaking soil samples around Tāne Mahuta.

The implications of closing the forest - a popular tourist attraction - are significant, agrees Te Roroa Trust general manager Snow Tāne.



Further areas of the forest may need steps taken to protect the kauri, including raising boardwalks or restricting access depending on the results of the scientific testing, Tāne said.

Kauri dieback is a fungus carried in soil spores that infects trees through their root system - while the soil sampling won't confirm whether trees are infected, the work will provide a map of where the disease is in the soil.

Kauri trees have special **adaptations** to survive in their **ecological niche** as the giants of the forest. Their **roots form a relationship** with another type of fungi (called mycorrhizas) that help Kauri use nitrogen in soil extremely efficiently; to build wood, bark and cones as they grow. Because of this **mutual** relationship, Kauri is one of the few species able to flourish in nutrient-poor soils. **Kauri leaf litter** that has fallen from the tree also change the pH of soil as it breaks down

(causing it to become more acidic), making it more difficult for non-Kauri seedlings to survive.

Horner is the lead scientist in the team collecting soil samples at Waipoua.

"It's upsetting seeing these thousand, perhaps couple thousand year old trees turned into these big skeletons," Horner said.

Kauri dieback attach to the roots of Kauri and infect them with their own tubular root-like structure called mycelia, which then attack the base of the trunk. This eventually stops nutrients and water being transported up through the tree, leaving it to die and stand as a ghost.

"I'm extremely worried it could infect Tāne - there's no reason why Tāne Mahuta would be immune from the disease."

There are noticeable signs people have been climbing off the boardwalk, said.

"Visitors to the tree are not a problem as long as they stay on the track - the only danger is when people climb up and start wandering off the track and potentially spreading the disease. People who do that can kill trees unnecessarily."



The parasite can be spread in just a pinhead of soil, transported on the soles of walkers boots.

There is no cure for Kauri dieback disease.