Forest Health News

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THE PATHOGEN THAT CAUSES KAURI DIEBACK HAS BEEN NAMED!

Kauri dieback is a disease that is killing kauri (*Agathis australis*) in New Zealand. The pathogen that causes it has been named by researchers at Landcare Research[1] as *Phytophthora agathadicida*. The pathogen's new name literally means 'kauri killer'.

Phytophthora agathadicida (see link for pronunciation: youtube.com/watch?v=hwnQ7JNR8UU) replaces *Phytophthora* taxon Agathis (PTA), which the pathogen was previously referred to while it was in the process of being formally described.

Oospores of *Phytophthora agathadicida*, the pathogen known as the kauri killer.

Scion researchers continue to contribute to kauri dieback research. Of note is the work being done with *P. agathadicida* in the Healthy Trees, Healthy Future research programme (www.healthytrees.co.nz), and Echo Herewini's research on developing screening assays for kauri dieback. Echo is a Bio-Protection Masters student who has spent the last year working at Scion on her research project; she is supervised by Assoc. Prof. Rosie Bradshaw, Dr Terry Stewart (Massey University), Dr Peter Scott, Dr Nari Williams (Scion) and Dr Phil Wilcox (University of Otago).

Beccy Ganley

[1] Weir, B.S., Paderes, E.P., Anand, N., Uchida, J.Y. Pennycook, S.R., Bellgard, S.E. & Beever, R.E. 2015. A taxonomic revision of Phytophthora Clade 5 including two new species, *Phytophthora agathidicida* and *P. cocois*. *Phytotaxa* **205**: 21–38.

UNUSUAL AND INTERESTING FINDS IN THE FOREST HEALTH REFERENCE LABORATORY

No two days are ever the same in the Forest Health Reference Laboratory (FHRL) and a week rarely goes by without seeing something we have not seen before. One of the most unusual enquiries came by way of an owner who had a strange looking substance oozing (Figure 1) from the grounds near some of their trees. The substance appeared and grew rapidly after rain, and the owner was able to poke a stick 1 m into it. The adjacent radiata pines were healthy but the owner was still concerned. Diagnosticians quickly ruled out any biological organisms, such as slime moulds, and sought help from others in Scion to identify this mysterious substance. It didn't take long to pinpoint that it was 'crystal rain', a product that absorbs and stores water, and can be used when establishing plantations. We informed the owner of our diagnosis and a few days later they told us they dug a hole and found a crystal rain package. It appears that an entire packet of crystal rain had been covered over when the radiata pine plantation was established, only to re-emerge every time it rained.

Figure 1. Mysterious substance oozing from the ground near a radiata pine plantation.

I suspect my neighbour is poisoning my trees can you have a look? Once or twice a year a distraught client will ring up explaining that they think their trees are being poisoned by the neighbour. Whilst the FHRL can test to see whether any pathogens are causing the symptoms, we cannot carry out analytical tests for the presence of herbicides and have to rely on symptoms alone. Typical symptoms of

poisoned trees include stunted and/or distorted growth, chlorosis between leaf veins, and often there are other symptoms which are also common in diseases caused by pathogens and insects, i.e. curled or slightly wilting leaves (Figure 2). A thorough examination is always done in case the symptoms observed are due to a new insect pest or a pathogen. In some cases a definitive diagnostic answer cannot be given as often secondary pathogens are found, which could be causing the symptoms, leaving the neighbour dispute to continue.

Figure 2. Poisoned tree (wineberry) or pathogen decline?

Unfortunately, while diagnosis can sometimes be easy we often need to deliver sad news to our clients. Recently a strange alcoholic smell was found diffusing from cracks in the trunk of an old liquidambar tree in a large well established garden. Pathologists hunted around for signs of fruiting bodies or wood decay fungi that could be causing the problem but found none. They also eliminated the possibility of soil-borne pathogens before concluding 'drunken tree' as the diagnosis. This disorder is commonly called 'alcoholic flux' and is caused by a microorganism that ferments the sap that seeps or bleeds from cracks and wounds in the bark (Figure 3). It usually occurs after a period of very hot, dry weather and the result is a white, frothy ooze that has a sweet, fermenting odour similar to beer. Sadly the tree was in decline because of other factors. Nothing could be done, and it had to be removed by the owners.

Figure 3. A 'drunken tree' suffering from alcoholic flux caused by a microorganism that ferments the tree's sap.

The diagnosticians in the FHRL are continually on the lookout for pathogens from overseas that may have arrived in New Zealand or for behavioural changes in pathogens that are already present. The above enquires represent some of the more quirky samples that pass through our lab.

Judy Gardner, Peter Scott and Beccy Ganley

GREAT NEWS FOR TORTOISE BEETLE BIOCONTROL - SUSTAINABLE FARMING FUND APPLICATION SUCCESSFUL!

In the February issue we introduced readers to *Eadya paropsidis*, the exciting Tasmanian parasitoid that attacks larvae of the tortoise beetle, *Paropsis charybdis*. The NZ Farm Forestry Association have recently been successful in obtaining a three year SFF funding contract to supplement investment by Southwood Export, Carter Holt Harvey, and Scion core funding. The team is also supported by the Specialty Wood Products Partnership, Timberlands and Ernslaw One. The work now begins in earnest to assess the host specificity of the parasitoid and ensure it is safe to use in New Zealand.

Toni Withers

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