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SAVING THE GRASS TREE FROM A DEADLY INVADER

A Deakin student is fighting back against a microscopic invader that's killing hundreds of species of heathland plants.

Over 70 per cent of heathland species in Victoria's national parks are thought to be susceptible to the introduced soil-borne water mould *Phytophthora cinnamomi*. It kills susceptible plants by infecting the roots and starving the plant of nutrients and water.

P. cinnamomi is a plant pathogen of global significance and the Australian government has listed the disease caused by it as a key threatening process of our natural heritage.

PhD student, Tiffany Gunning, at Deakin University's School of Life and Environmental Sciences, is studying the resistance of native plants to this pathogen with funding from the Department of the Environment, Heritage,

Water and the Arts. "If 70 per cent of plants are susceptible, then 30 per cent survive. I am interested in what it is about these plants that makes them resistant to disease. I hope to

use this information to manipulate susceptible plants," says Tiffany.

One species particularly at risk is the grass tree *Xanthorrhoea*. "*Xanthorrhoea australis* is a dominant species in our south-eastern forests and it makes a huge change to the structure and ecology of an area when it's gone; habitats are lost," says Tiffany.

"It is very easy to spot the infection. To start with the grass tree goes a bit yellow, then brown and then it literally falls apart. A 200-year-old mature grass tree can be killed in just 18 months."

Using analytical chemistry she has found differences in the metabolite profiles of healthy and diseased plants. This understanding of the interaction between the plant and pathogen can be used to develop ways to boost resistance in susceptible plants.

"In agriculture, if a pathogen is attacking wheat, there is the potential to selectively breed or genetically engineer for resistance. We can't do that with an established native forest, so the answer could be something like a foliage spray that could give the plant a boost," says Tiffany.

Heathland in which the grass trees have been killed by *Phytophthora cinnamomi*.
Image: Tiffany Gunning, Deakin University

FURTHER INFORMATION:

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