

FDI Feature Interview

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Justin Bellanger: The Dieback Disease Threat to the Forests of South-West Western Australia

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Key Points

- The South-West region of Western Australia is registered as a 'biodiversity hotspot', containing one of the greatest ranges of plant varieties of anywhere in the world.
- The plant disease dieback currently threatens extensive areas of the Western Australian landscape.
- Dieback also constitutes a significant biosecurity risk to the Western Australian agricultural industry, particularly orcharding.
- Effectively managing dieback requires a thorough understanding of where it occurs in the landscape. It also requires communicating with the community and industry about the threat and its impacts on the environment.

Introduction

Phytophthora cinnamomi, commonly known as Phytophthora dieback or just dieback, poses a significant threat to the Australian environment. This introduced plant pathogen spreads easily, causing disease, death and potential extinction in susceptible plants; also loss of habitat for native animals. The disease is often difficult to detect and can cause permanent damage to ecosystems and landscapes before it is identified. It can also remain dormant for long periods during dry weather. In most situations, it is impossible to eradicate from infested areas, so it is critical to prevent further spread. The disease is currently threatening large parts of Western Australia's [South-West native forests](#). It poses a major threat to over 40 per cent of the native flora in Western Australia, particularly in the South-West regional area.

Justin Bellanger, from the South Coast Natural Resource Management (NRM) agency recently spoke to FDI, outlining the extent of the disease, its impacts and the work his organisation is doing in dealing with the problem.



Dieback-affected banksia scrubland in the South-West of Western Australia. Source: South Coast Natural Resource Management Inc.

Interview

FDI: What is dieback and what environmental and other impacts will it cause in Western Australia's South-West?

Justin Bellanger: Dieback is a plant disease that occurs in soil. It now infects a major proportion of native plant species growing across our South-West landscape. To put that into context, the South-West of WA is a [biodiversity hotspot](#); the area contains one of the greatest ranges of plant varieties of anywhere in the world. That has come about due to the extremely old soils in the area, where plants have had to evolve to be able to survive in uniquely harsh conditions. The result, that has evolved over millennia, is the amazing floral diversity of the South-West.

Returning to your question, dieback is a soil-borne water mould that clumps around the roots of plants and trees and then essentially starves them of nutrients and water. It arrived with the early European settlers, on the roots of cinnamon plants, hence its scientific name, *Phytophthora cinnamomi*.

The unique flora of the South-West has, in turn, led to the evolution of equally unique animal species dependent on that flora. For instance, the [Honey Possum](#), which lives exclusively on nectar, is unique in the world. It needs a year-round supply of flowering plants to be able to survive and breed. There are also other ecosystems in the region that are inter-twined and highly reliant on our diverse and complex plant species. These need to be protected, which means that managing dieback is critical in WA.

Introduced agricultural crops are also susceptible to dieback. For instance, avocados, most citrus species and nuts, such as almonds and macadamias, can all be infected. This necessitates, from an agricultural productivity perspective, an effective dieback management regime in cultivated lands.



The Honey Possum is unique of South-West Western Australian and completely dependent on native flowering plants Source: <https://www.wanaturalists.org.au/reports/>

FDI: How has this situation developed?

Justin Bellanger: The current situation is the result of the *Phytophthora* spores being allowed to spread in the local environment for many years. The spores have, predominantly, been spread by human activity, there being two main vector pathways. The first is humans moving infected soils around; whether by vehicles or pedestrian traffic. The second pathway is by natural movement, from water eroding infected soils during rain events. Examples of events causing the movement of dieback spores include: roadworks carried out in infected areas; utilities doing work such as erecting power poles and wires; operations to construct drainage; and recreational activities such as: off-road driving; trail and mountain bike riding; bushwalking; and horse riding on trails.

In essence, dieback is a human management issue. The two key elements to its effective management are: firstly, identifying where it is in the landscape; and secondly, communicating broadly to the community how to avoid spreading the disease. These are critical components of the management strategies that have been designed to deal with it.

FDI: What are you doing about it and are you meeting with success?

Justin Bellanger: We communicate broadly to raise community and public awareness of dieback and its impacts. Much of the work that we do at South Coast NRM, is to make people aware that we have the disease in our environment. We also inform the community of our excellent strategies and management techniques, which both contain the disease and protect areas that are not infected. An important part of our job is to make those messages broadly understood in the community.

An important part of the message is the recognition that the problem is manageable; we need to avoid both complacency or any inclination to see the problem as too difficult. The work we have been doing in managing the dieback disease has been presented to an international audience; the response has been recognition that our practices are of a world-class standard.

We have a [State Phytophthora Dieback Management and Investment Framework](#), which, I understand, is one of a very few “whole of landscape” scale management plans. The framework provides a logical process and an operational toolkit, to develop area-specific management actions. These actions, designed to prevent the further large-scale spread of dieback, would include: on-ground activity, planning, engagement, communication and structured training. This facilitates a standardised approach for targeted management and investment across all levels of land tenure, enabling collaboration between key stakeholders and providing optimum return for the preservation of the State’s unique biodiversity assets. I have not found any comparable plans in the agricultural or environmental sectors. Our plan covers all areas where the disease has been [located in Western Australia](#). It contains the top 100 areas where we need to commit resources and apply our efforts, to maximise the return on our investments in managing the disease. We have also identified another 1,500 sites that need protecting, but from a priority perspective the top 100 are the sites that we are working on first. These strategies demonstrate “best practice”.

As previously stated, under-pinning the communication strategy is a range of on-ground actions. These include: ‘green-bridging’, which is capping over the soils in disease-infested roads; erecting appropriate and easy to understand signage; installing boot cleaning stations; and improving training courses. Altogether, we have a package that incorporates planning, on-ground actions and then communication strategies, to get the important messages through to all stakeholders. In a holistic sense, while we recognise that we do have the dieback disease, we also have the solutions needed to effectively manage the problem.

FDI: What further steps need to be taken in the future?

Justin Bellanger: As I have stated, one of the key elements in managing biosecurity is information. You need to know where the threat is and what the assets are that you need to protect. At the South Coast NRM, we do a lot of work on continuing to survey for diseases issues and then working out how we can effectively contain the infected areas.

In the future, we will be looking at investing in new technology. We are starting to look at geospatial applications. We are considering trying to link relevant information (about dieback locations) into *Google Maps*. I also think there may be some interesting applications or tools emanating from the military, which we could potentially use to help us manage dieback biosecurity. Another opportunity for us is to consider using [environmental DNA](#) to speed up our surveys for the disease. These capabilities, however, are very much in their infancy.

FDI: Are there ways that we can innovate our approaches within the environmental sector to enhance agricultural and other applications?

Justin Bellanger: South Coast NRM is an independent, not-for-profit, community-based group. It has chosen to take the lead in combatting dieback in WA, because it considers the problem on a whole-of-landscape basis. In many cases, unfortunately, government agencies are limited to actions consistent with their statutory responsibilities. Our approach, however, is to address management of the entire landscape. Consequently, we have priority areas for protection that run across a range that includes private land, un-allocated [Crown land](#) and government-managed land tenures. Our Dieback Management and Investment Framework does not have boundaries and our resources are allocated according to need.

The South Coast NRM group is committed to a continuous improvement process, as we learn from our experiences. I mentioned before that dieback affects some of our important agricultural crops in Western Australia. The group believes that many of our practices and techniques can help offset this and are easily adaptable to the agricultural and horticultural sectors. I think there are opportunities to engage with private landholders who have invested significant capital in their land assets and also with other public land managers, such as local governments, which might have responsibility for disease-infested areas, particularly roads and other thoroughfares. The group would be interested in working with them to identify where it might be appropriate to offer advice and assistance.

FDI: Do you have a sense that the members of the agricultural community have sufficient understanding of this issue?

Justin Bellanger: I do not believe they do, which is a shame for two reasons. Firstly, because of the risk it presents to agricultural productivity and the likely flow-on to the general economy. Secondly, there are some fantastic pockets of dieback-free native vegetation on farms, which have survived because they have been isolated from the predominant vectors of dieback, such as roadbuilding machinery. In addition, isolation and distance have meant that bushwalkers, recreational vehicles, campers and others, have not been to these farming properties. These areas represent a priority future management task.

About the Interviewee:

Justin Bellanger is the Chief Executive Officer of the South Coast NRM. He has worked in the natural resource management field for over 12 years in executive roles, overseeing a community-led approach to protecting threatened species and landscapes. This is done by ensuring that adequate planning and resources are in place for both grass-roots practitioners and science-based professionals, in the South Coast Region. He has the great privilege of working with an exceptionally skilled team and a deeply passionate and engaged community in a very special part of Western Australia.

Any opinions or views expressed in this paper are those of the individual interviewee, unless stated to be those of Future Directions International.

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