Last stand at Bell Track

Originally considered worthless by early explorers, Fitzgerald River National Park is today world-renowned for its amazing biological diversity. The importance of conserving this unique area is reflected in a major $1.4 million investment to contain dieback.

by Katie Schoch

Situated between Bremer Bay and Hopetoun on the south coast of Western Australia, the 330,000-hectare Fitzgerald River National Park is home to 1,800-plus plant species (nearly 20 per cent of the plant species found in WA) and at least 19 native mammals. Such is its importance that the park has been declared a World Biosphere Reserve—one of 529 places in the world to receive this internationally recognised conservation listing from UNESCO.

Unfortunately, the park is also home to a 185-hectare infestation of *Phytophthora cinnamomi*, an introduced water mould that attacks plants and causes root rot and is the cause of the deadly plant disease, *Phytophthora* dieback. Now known as the Bell Track infestation, the pathogen was introduced in the 1970s by earth-moving equipment constructing an unauthorised track through the park.

Tackling dieback

Faced with the challenge of containing the Bell Track infestation, and with no known cure for the disease, the Department of Environment and Conservation (DEC)—with additional support and funding through South Coast Natural Resource Management—is undertaking a $1.4 million dieback containment project. The project is funded by DEC's biodiversity conservation initiative *Saving our Species* and aims to prevent the infestation spreading beyond the micro-catchment boundary.

While containing the infestation and treating affected areas is not a new issue, the strategies being implemented under the Bell Track *Saving our Species* project are innovative, multi-faceted and experimental, reflecting the importance of protecting Fitzgerald River National Park from the devastating effects of this disease.

In December 2007 DEC installed three kilometres of physical and chemical barrier in areas where there was a high risk of the infestation escaping from its current micro-catchment. This would prevent plants spreading the pathogen through root-to-root contact. A two-millimetre-thick plastic membrane was trenched one metre into the ground. A chemical dispersion system was then placed at the bottom of the trench to deliver a root-inhibiting and fungicide chemical to discourage deeper roots growing under the membrane.

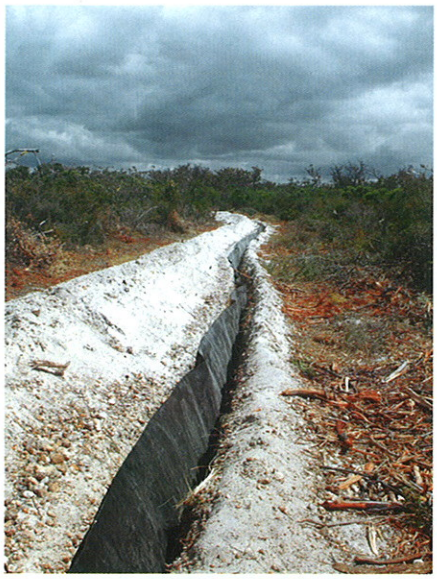
The membrane was the latest stage in the project, which also involved the construction of a 12-kilometre fence to prevent kangaroos spreading infested soil—a major cause of the spread. The 1.8-metre-high fence, which took nearly four weeks to complete, now surrounds the entire Bell Track infestation.

Phosphite, which is known to inhibit the growth of the pathogen in plants, has also been aerially applied to the infestation on a periodic basis. In conjunction with aerial application, high-intensity phosphite has been applied by hand to areas recognised as high-risk sites within Bell Track.

Strict measures have been taken throughout each stage of the project to ensure that the work does not contribute to spreading the infestation. Hygiene management has included the wash down and inspection of all vehicles and machines, restricted access along the fence alignment and preventing the movement of vehicles and equipment at the site on wet soil days. Intensive soil sampling was also undertaken before any on-ground works started to ensure areas were free of the pathogen. Samples were subject to innovative DNA extraction and analysis by the Centre for Phytophthora Science Management at Murdoch University and further analysis by DEC's Science Division's Vegetation Health Service.

Previous page
Main DEC staff monitoring typical Bell Track vegetation for signs of infestation.
Insets Baxter's banksia (*Banksia baxteri*), scarlet banksia (*B.coccinea*).

Left *Phytophthora cinnamomi* can devastate banksia.
Photos – Maria Lee



Top left A plastic membrane to prevent the root-to-root spread of *Phytophthora cinnamomi*.
Photo – Maria Lee

Top right Western pygmy possums inhabit Fitzgerald River National Park.
Photo – Stuart Miller

Above left Bell Track.

Above centre Nari Williams from Murdoch University extracts and analyses *Phytophthora cinnamomi* DNA from soil samples.

Above right Prickly dryandra (*Dryandra falcata*).
Photos – Maria Lee

Future tactics

A hydrological investigation and feasibility study is currently under way and will provide DEC with options to manage surface water flow within the micro-catchment. Several other strategies will begin this year, including the design and construction of engineering works to manage surface water run-off. High-water intake native plant species that are tolerant to *Phytophthora cinnamomi* will also be planted in areas where the pathogen has reduced the quantity of original vegetation. These plants will help to use up the rainfall and surface water on site, reducing the risk of water spreading the pathogen to other areas.

Throughout the project, DEC research scientists have studied the management responses being trialled, and monitored their effectiveness. This has included a detailed study that has described the behaviour of the pathogen on the site. The information gathered through this research has ensured that project management decisions are based on sound scientific principles.

Importantly, techniques used in the *Saving our Species* Bell Track project have the potential to be applied worldwide to help fight the devastating effects of *Phytophthora cinnamomi*.

Recently a new infestation of *Phytophthora cinnamomi* was confirmed in the national park on the Susetta River. It is believed this infestation may have been introduced through *Phytophthora cinnamomi*-infested gravel on a road outside the park. It is hoped that the lessons learnt from the operation at Bell Track will help in the management of the Susetta River infestation and also in preventing new infestations elsewhere.

Katie Schoch was the *Saving our Species* Communications Project Officer at the Department of Environment and Conservation when she contributed this article.

Valuable contributions to the article were made by DEC staff Malcom Grant, Maria Lee and Chris Dunne.

Volume 23 Number 4 WINTER 2008

contents

46 The black Swan: investigating the estuary after dark
Dive into the waters of the Swan estuary at night and discover a fascinating underwater world.

54 Working to conserve the western ringtail possum
Translocation offers hope for these possums, threatened by urban expansion and development.

Regulars

3 Contributors and Editor's letter

9 Bookmarks
Shorebirds of Australia
The Hot Topic
A Potoroo's Tale

45 Endangered
Granite spider orchid

52 Feature park
Lesueur National Park

62 Urban Antics
Fly me to the moon

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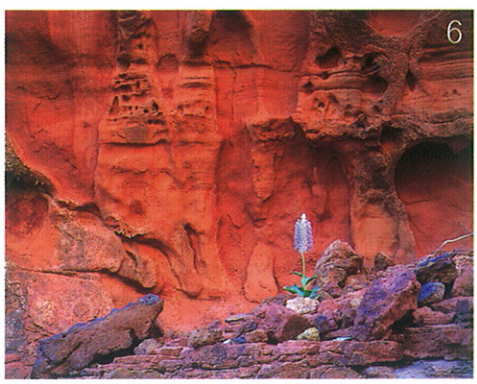
38


16


6


10