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A BIOSECURITY POST-BORDER SUCCESS STORY: EARLY DETECTION AND REMOVAL OF *RUGONECTRIA* CANKER FUNGUS IN AN OAK TREE

The following is based on an article by Ho et al. (2014) that appeared in *Surveillance* 41(1): 45-47. Thanks to the Ministry for Primary Industries for permission to do this. The original article can be found at: <http://www.sciquest.org.nz/node/94085>.

Introduction

In 2011, an oak tree (*Quercus robur x canariensis*) with elongate, sunken cankers on the trunk was discovered in urban Auckland through the High Risk Site Surveillance Programme conducted by the MPI. The affected tree was located near a hub of registered Transitional Facilities for overseas shipping containers. This article describes how the fungus was identified, contained and treated. It appears likely that the result is a successful eradication of this new to New Zealand organism before it had an opportunity to become established.



The oak tree (*Quercus robur x canariensis*) when infection was detected.



Cankers on lower trunk.

Identification of the fungus

The trunk cankers bore orange-red fruit bodies of a nectriaceous fungus that did not match the description of species known to be associated with oak cankers in New Zealand. Morphological characteristics of the specimen fitted the broad description of a fungus, *Rugonectria castaneicola*, which is associated with stem cankers or cracked bark of a range of tree hosts in Japan. When the DNA sequences on this fungus from the oak tree were examined and compared with sequences retrieved from international databases, it was revealed to be a species new to science and present in China, subsequently named *R. sinica*.

This is the first record of a species of *Rugonectria* associated with a stem canker of *Q. robur x canariensis* in New Zealand.



Clusters of orange-red, warty fruit bodies of *Rugonectria* formed on bark.

Pathogenicity of *Rugonectria sinica*

Species of *Rugonectria* are putative tree pathogens as they are associated with stem and trunk cankers, or found growing on recently killed trees. *Rugonectria castaneicola* is associated with stem cankers or cracked bark on a range of tree hosts in Japan. Its pathogenicity has been demonstrated in *Abies veitchii* and *Acer crataegifolium*. *Rugonectria rugulosa* causes bark death and is associated with trunk cankers of *Macadamia integrifolia* in Hawaii. The third previously recorded species, *R. neobalansae*, occurs on the bark of living and recently killed trees and is known only in Indonesia.

The crown of the infected tree was healthy but a cross-section of the sapwood beneath the cankers was stained brown. In China, *R. sinica* has been found on dead twigs of plants, including *Quercus* species. The potential for *R. sinica* to be a serious pathogen of *Quercus* spp. is unknown.



Cross-section of tree trunk showing brown staining of sapwood.

NOTE FROM THE EDITOR

The editor wishes to remind readers that short notes on topical issues concerning forest health are welcomed. This includes discussion of or other points of view of topics appearing in FH News.

Removal of infected tree and treatment of material

Permission was obtained from the lessees of the Auckland site to fell and dispose of the infected tree. Branches were removed and the tree felled in December 2011. All plant material including stump, branches and leaves was wrapped in tarpaulins and transported in a covered truck for deep burial at an approved site. Sawdust and wood chips were removed from chainsaws and added to the material sent to the landfill. Chainsaws were stripped and, along with other equipment used at the site, were sprayed with a quaternary ammonium compound solution. The parts were left for 30 minutes, rinsed with water and left to dry. The stump was cut below ground level and a heavy coating of picloram herbicide applied to the surface. In regular follow-up surveys the fungus has not been found on surrounding trees.

MPI will declare that the fungus has been eradicated if no further finds are detected during follow-up surveys.



Removal of the infected oak.

CHESTNUT BLIGHT IN AUSTRALIA - UPDATE

Forest Health News 237 (June 2013) reported on the progress on the attempted eradication of chestnut blight (caused by the fungus *Cryphonectria parasitica*) in Ovens Valley in north-east Victoria. It was stated that the eradication was still on track and a very definite possibility. The Victorian Department of the Environment and Primary Industries (DEPI) carried out further surveys in November 2013 and no signs of chestnut blight were found; very good news indeed. The swift, decisive and sustained action undertaken as soon as the disease was first discovered in Ovens Valley (September 2010) has no doubt made a huge contribution to the chances of success.

For further information see:

www.chestnutsaustralia.com.au

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