

UPDATE ON NECTRIA FLUTE CANKER

Nectria flute canker is a disease of radiata pine found in the South Island from mid-Canterbury south. The disease usually expresses as stem malformation and stain. While infected trees are not directly killed by the flute canker, and generally exhibit a healthy crown, the disease can severely reduce wood quality. The fungus associated with this disease, *Nectria fuckeliana*, was first formally recorded in New Zealand in 1996, although it is likely to have been present for some years prior to this time. *N. fuckeliana* is a Northern Hemisphere fungus which has been commonly recorded as a saprophyte or wound invader of species of *Abies* and *Picea*. The New Zealand record of this fungus is the first finding in the Southern Hemisphere and the first record of *N. fuckeliana* as a serious pathogen of a plantation species.

The Nectria Focus Group was established as a collaboration between the forest industry and research providers to oversee research projects related to understanding the epidemiology of *N. fuckeliana* and finding effective strategies to manage Nectria flute canker. The group meets annually and this year met in Dunedin. The meeting included updates on current research projects and plans for future research, some of which are summarised in this issue of Forest Health News.

NECTRIA ECOLOGY PROGRAMME

Research within the Nectria ecology programme is progressing well. The principal aim of the programme is to increase our understanding of the ecology and epidemiology of *Nectria fuckeliana*, and it is hoped that this may lead to better management strategies for Nectria flute canker disease. In the last year, the programme has focussed on three specific areas of research: pathogen dispersal, pathogen infection mechanisms and pathogen survival in the host.



Members of the Nectria Focus Group examine sections of a tree infected with *Nectria fuckeliana* during a field day.

N. fuckeliana, like many other fungi, produces three different spore types. Of these, the sexual ascospores appear to be the most common in plantations and are likely to be the primary dispersal method. The fruitbodies, or perithecia, that produce these spores usually develop on trees 9-12 months after infection and development of flute cankers. These spores are dispersed by water and can survive for at least 12 months under very cold conditions (~ 4°C).

Field trials have shown that *N. fuckeliana* is able to use a variety of methods to enter and infect trees. These include entry through pruned branch stubs, deep sapwood wounds and shallow stem wounds. Recent work by Power and Ramsfield has also shown that *N. fuckeliana* can be present in unpruned, unwounded trees (see *FH News 165* August 2006 and *FH News 175* July 2007). This finding has led to a series of new trials looking at branch crotches at potential infection sites. We eagerly await the results of these trials!

Recently Ministry of Agriculture and Forestry Operational Research funding allowed the opportunity to examine the survival on *N. fuckeliana* in living trees and woody debris on the forest floor. Results so far indicate that *N. fuckeliana* can survive in living trees up to 12 years following infection and can survive in woody debris on the forest floor for at least 16 months.

This fundamental work on the ecology of *N. fuckeliana* has helped to explain some of the results obtained from operational trials and has contributed to improved management of radiata plantations in diseased prone regions.

Anna Hopkins

NECTRIA FOCUS GROUP MEETING

There was robust discussion on future Nectria research during a recent Nectria Focus Group meeting in Dunedin. Interim results from the work on relating external symptoms with internal defect were received with great interest and the Group clearly supported further work in this area. As a result, two new proposals have been submitted to WQI Ltd. One research topic will focus on determining the relationship of visible fluting to internal damage for use with pre-harvest inventories while the second area will evaluate mature stems at the mill and relate external damage with sawn value recoveries, by assessing the Pruned Log Index and other criteria. Both of these studies will help determine the economic impact of Nectria.

Other areas of research focus included testing a range of silviculture strategies to answer questions such as: will a less aggressive pruning regime result in less disease? A proposal to fund a new silviculture trial that may answer some of those questions has been submitted to the Forest Biosecurity Research Council. In addition, a new trial set up to examine the influence of weather during and after pruning was established in April. The other area of research focus was genetics where the need to identify susceptible genotypes and then eliminate them from the planting programme in affected areas was

...NECTRIA FOCUS GROUP MEETING CONTINUED

recognised. It was agreed that genetics offered an opportunity for mitigation of disease, while acknowledging that it would not offer a solution in the short-term, nor result in complete elimination of loss. Some outcomes from the fundamental ecology work discussed above, such as determining the spore type and amount of inoculum most important for dispersal and successful infection, will be important for testing stock in the field.

Lindsay Bulman

CYPRESS CANCKER: NEW WEB PAGE ON THE ENSIS WEBSITE

The leaflet "Forest Pathology in New Zealand No. 8" on cypress canker, which was first published in 1984, has been revised and has been posted as a Fact Sheet on the Scion website. New information on the host range, the severity of the disease and the taxonomy of the cypress canker fungi has been gathered by forest pathologist Ian Hood. The distribution of the different fungi that cause this disease has been mapped and as new records occur the map will be updated.



Cypress canker on
Cupressus macrocarpa

The webpage can be accessed at

<http://www.ensisjv.com/ResearchCapabilitiesAchievements/ForestHealthBiosecurityandFire/ForestPestFactSheet/CypressCanker/tabid/504/Default.aspx>

The revision was funded by the Forest Health Research Collaborative and a link to the fact sheet is also available on the FHRC website (<http://www.fhrc.org.nz/>).

Margaret Dick

NEW ARRIVAL - LUCY MANNING

Lucy, who is originally from the UK and is a BSc honours graduate in Wildlife Conservation, has recently joined the forest biosecurity and protection team as a GIS Specialist. Lucy has been living in Rotorua for over two years. During this time she worked for Wildlands Consultancy as a GIS Analyst, followed by a stint at the University of Waikato University using GIS to research the suitability of habitat in Hamilton for a potential bellbird re-introduction and translocation. Her work here will involve working with colleagues to carry out GIS analysis on a variety of projects.

Prior to arriving in New Zealand Lucy worked on several international conservation projects, mainly involving various bird species and small-medium sized mammals. This was followed by working as a GIS Analyst at an ecological consultancy in Surrey.

Lucy is very happy living in Rotorua and working with the forest biosecurity and protection team at Scion. She is enjoying her role applying GIS to different projects, whilst learning about the work being done here.

Editor

NEW RECORDS

New host record for New Zealand – Insect: *Icerya purchasi* (Margarodidae); **Region:** Auckland; **Host:** *Hymenosporum flavum*; **Coll:** C Inglis, 26/03/2008; **Ident:** J Bain, 01/04/2008; **Comments:** A polyphagous Australian species first recorded in New Zealand in 1897. It is now found virtually throughout the world, particularly where citrus is grown.

New host record for New Zealand – Insect: *Coccus hesperidum* (Coccidae); **Region:** Auckland; **Host:** *Beilschmiedia tarairi*; **Coll:** C Scott, 14/03/2008; **Ident:** R Henderson, 02/04/2008; **Comments:** This cosmopolitan scale insect was first found in New Zealand in 1878. It is extremely polyphagous and is found on both exotic and native plants. It is a serious pest of ornamentals, both indoors and outdoors.

New host record for New Zealand – Insect: *Hemiberlesia rapax* (Diaspididae); **Region:** Auckland; **Host:** *Camellia tsaii*; **Coll:** C Inglis, 06/03/2008; **Ident:** R Henderson, 02/04/2008; **Comments:** This cosmopolitan armoured scale insect has a very wide host range including both native and exotic plants. It has been recorded from *Camellia* sp. in New Zealand and *Camellia* sp. and *Camellia thea* overseas.

New host record for New Zealand – Insect: *Hemiberlesia rapax* (Diaspididae); **Region:** Hawke's Bay; **Host:** *Ceanothus impressus*; **Coll:** B Rogan, 17/03/2008; **Ident:** R Henderson, 02/04/2008; **Comments:** This cosmopolitan armoured scale insect has a very wide host range including both native and exotic plants.

New host record for New Zealand – Insect: *Oemona hirta* (Cerambycidae); **Region:** Auckland; **Host:** *Asparagus setaceus*; **Coll:** C Inglis, 28/03/2008; **Ident:** J Bain, 04/04/2008; **Comments:** This native branch borer has a huge host range.

New host record for New Zealand – Insect: *Oemona hirta* (Cerambycidae); **Region:** Auckland; **Host:** *Callistemon citrinus*; **Coll:** C Inglis, 23/04/2008; **Ident:** J Bain, 30/04/2008; **Comments:** See above.

New host record for New Zealand – Insect: *Ampagia rudis* (Curculionidae); **Region:** Auckland; **Host:** *Corylus* sp.; **Coll:** C Inglis, 12/03/2008; **Ident:** D Jones, 07/04/2008; **Comments:** The only previously recorded host for this native weevil is *Quercus ilex*. It is a wood borer.

New host record for New Zealand – Insect: *Xylotoles griseus* (Cerambycidae); **Region:** Nelson; **Host:** *Erythrina crista-galli*; **Coll:** P Bradbury, 08/04/2008; **Ident:** J Bain, 14/04/2008; **Comments:** This native longhorn beetle has been recorded from a wide range of native and exotic hosts.

New host record for New Zealand – Insect: *Saissetia coffeae* (Coccidae); **Region:** Auckland; **Host:** *Buxus microphylla*; **Coll:** J Goodenough, 18/04/2008; **Ident:** J Bain, 22/04/2008; **Comments:** This very polyphagous, tropicopolitan scale insect was first reported from New Zealand in 1879. It is often a pest of ornamentals, especially ferns and potted plants. It has been recorded from *Buxus* sp. overseas.

New distribution record for New Zealand – Fungus: *Phaeolus schweinitzii*; **Region:** Wellington; **Host:** *Pinus radiata*; **Coll:** B Rogan, 07/04/2008; **Ident:** M Dick, 11/04/2008; **Comments:** This species is common tree decay fungus in the Northern Hemisphere. Collections in New Zealand have been made from *Pinus radiata* and from litter in Auckland, Dunedin and Southland.

New distribution record for New Zealand – Fungus: *Phaeophleospora eucalypti*; **Region:** Southland; **Host:** *Eucalyptus nitens*; **Coll:** R Thum, 02/04/2008; **Ident:** K Walbert, 07/04/2008; **Comments:** A common leaf spot fungus on *Eucalyptus* spp. It is quite widespread but this is the southernmost record.

New distribution record for New Zealand – Fungus: *Uredo spyridii*; **Region:** Nelson; **Host:** *Pomaderris apetala*; **Coll:** B Doherty, 21/04/2008; **Ident:** A Hopkins, 23/04/2008; **Comments:** This native rust fungus has previously been recorded from Northland, Auckland, Coromandel, and Wellington.

New host record for New Zealand – Fungus: *Coleophoma cylindrospora*; **Region:** Westland; **Host:** *Populus trichocarpa*; **Coll:** B Doherty, 17/03/2008; **Ident:** A Hopkins, 02/04/2008; **Comments:** This pathogen, which causes foliar lesions has previously been recorded from *Camellia japonica*, *Cupressus macrocarpa*, *Eucalyptus saligna*, *Griselinia* sp., *Hypericum* sp., *Libocedrus bidwillii*, *Pinus radiata*, *Pseudopanax crassifolius* and *Pseudotsuga menziesii*.

John Bain