Forest Health News

SCION Next generation biomaterials

No. 205, May 2010 ISSN 1175-9755

NEW ZEALAND'S BIOLOGICAL CONTROL PROCESS REVIEWED

The Environmental Risk Management Authority (ERMA New Zealand) has released a review of the influence of the HSNO Act on the process of biological control. The review is based on questionnaire responses and discussions with biological control researchers, industry groups and other interested parties.

The Hazardous Substances and New Organisms (HSNO) Act was introduced in 1996 to regulate the introduction of new organisms, including biological control agents. ERMA New Zealand administers the Act by considering applications to introduce new organisms and provides an independent and transparent decision making process that allows for public participation. Prior to the HSNO Act coming into force, decisions on the introduction of biological control agents were made by senior officials in the Ministry of Agriculture and Forestry.

The review concludes that the HSNO Act is widely accepted by biological control scientists and provides a clear framework for decision making that is removed from political influence. The process thoroughly considers risks to the environment, biodiversity, human health and culture and the economy, and encourages science excellence and a conservative approach to risk. The HSNO Act is highly regarded internationally, as few other countries have such a transparent and structured process.

For industry however, the HSNO Act is seen to add costs to the process of biological control, putting it out of reach of smaller growers with insect pest or weed problems. Eucalypt growers are a good example of this, being a small industry confronted by large numbers of pests arriving from Australia, for many of which biological control is the only appropriate control option.

***Enoggera nassaui* - a biological control agent introduced to target eucalypt pest *Paropsis charybdis* in New Zealand.**

There is no easy solution to the conflicts between the requirements of the application process and the costs to end users. Biological control scientists base their work on international best practice, which is increasing in complexity as we improve our understanding of how introducing a new organism can affect the environment. The New Zealand public tend to be risk averse, citing historic impacts of biological control, often without understanding current best practice and the many benefits. In addition, the HSNO Act deals with genetically modified organisms under the same process, resulting in biological control agents being treated with a similar degree of caution. Meanwhile growers are facing increasing threats from unregulated invaders that escape our biosecurity system, combined with pressure to reduce chemical usage. Biological control is the obvious solution in many cases, and is very cost effective in the long term, but obtaining funding to conduct the research needed to introduce a new agent, as well as application costs, can be restrictive.

The ERMA NZ report is available from http://www.ermanz.govt.nz/resources/rrr.html

Lisa Berndt

PHYTOPHTHORA ROT IN FOREST NURSERIES

Forest Health News 194 (April 2009) contained an article on controlling *Phytophthora* root rot in *Pinus radiata* nurseries. The most effective treatment used in the trials was phosphorous acid. This work has been reported with additional details in the latest issue of the New Zealand Journal of Forestry, February 2010. Copies of the paper can be downloaded at http://www.nzjf.org/.

Reglinski, T., Spiers, M., Taylor, J., Dick. 2010. Roor rot in radiata pine seedlings can be controlled. New Zealand Journal of Forestry 54 (4): 16-18.

John Bain

*Newsletter of the **Scion Forest Protection team**, and the **Forest Health Reference Laboratory** (incorporating the Forest Research Mycological Herbarium (NZFRI-M), the Forest Research Culture Collection (NZFS), and the National Forest Insect Collection (FRNZ). Edited by John Bain, New Zealand Forest Research Institute Ltd, Private Bag 3020, Rotorua. <john.bain@scionresearch.com> Web site < http://www.scionresearch.com/biosecurity >*

NEW PAPER ON WESTERN GALL RUST

We have published a paper on the specific method that we developed to detect the DNA of the western gall rust pathogen within infected host tissue. *Peridermium harknessii* (syn. *Endocronartium harknessii*) has long been viewed as a potential risk to exotic radiata pine plantations in the southern hemisphere because, unlike most rust pathogens, an alternate host is not required to complete the lifecycle. This means that *P. harknessii* is able to spread directly from pine to pine.

The impact of infection can range from volume loss due to branch galls, through to mortality due to stem breakage at a stem gall. Wood quality can also be affected due to characteristic "hip-cankers" on the stem.

The pathogen is not present in New Zealand. It takes a long time to produce spores and this method was developed so that the pathogen could be identified prior to sporulation and potential spread. If the pathogen can be detected before sporulation, the probability of successful eradication is much higher.

In addition to the DNA markers that we developed, we used the DNA sequence generated during the study to analyse the relationships between *P. harknessii* and its closest relatives. This analysis, utilising a portion of the genome that has not been used for the gall rusts before, confirmed earlier work that *Cronartium quercuum* f. sp. *banksianae* is the closest relative to *P. harknessii*. This means that *P. harknessii* is either an autoecious derivative of *C. quercuum* f. sp. *banksianae* or that they share a recent common ancestor.

One of the rewarding aspects of this work is that we were able to investigate a fundamental science question while developing a practical tool that can be used by MAF Biosecurity New Zealand and other regulatory agencies.

Sporulating gall of *Peridermium harknessii* on pine

For further information on western gall rust and the risk that it poses to New Zealand, see:

Ramsfield, T.D., Kriticos, D.J., Vogler, D., and Geils, B. 2007. Western gall rust – a threat to *Pinus radiata* in New Zealand. New Zealand Journal of Forestry Science. 37:143-152. A copy of this paper can be downloaded from http://www.scionresearch.com/general/science-publications/science-publications/nzjfs/previous-volumes/issue-37.

Ramsfield and Vogler 2010: "A DNA-based method for detection of *Peridermium harknessii,* the causal agent of western gall rust". Australasian Plant Pathology 39: 247–253. Copies of this paper can be obtained from http://www.australasianplantpathologysociety.org.au/ or from the author (tod.ramsfield @scionresearch.com).

Tod Ramsfield

NEW FUNGI

The February 2010 issue of the Biosecurity magazine (No. 96) listed two fungi as new to New Zealand – *Phaeoacremonium rubrigenum* and *Heptameria obesa*. Both were found during the course of high risk surveillance surveys.

Phaeoacremonium rubrigenum was isolated from branches of *Melia azedarach* with dieback symptoms in Napier. Other fungi, including a species of *Botryosphaeria* were also obtained from the live/dead margins. Whether *P. rubrigenum* is contributing to the dieback is unknown. *Phaeoacremonium* is a recently described genus associated with decline diseases of several woody hosts and with human infections (usually immuno-compromised).

In the Northern Hemisphere *Phaeoacremonium rubrigenum* has been isolated from bark beetles and their galleries in *Quercus* and *Fraxinus* and has also been associated with Esca disease of grapevines and with a disease of kiwifruit vines. The fungus has subsequently been found on the same host in Palmerston North.

Heptameria obesa was isolated from dead twigs and small branches of *Pittosporum tenuifolium* from Kawatira Junction in Nelson. *Heptameria obesa* has been recorded from Europe and North America on dead stems and twigs of shrubby species of *Baccharis, Centaurea, Cirsium, Helichrysum, Inula, Antirrhinum* and *Scabiosa.* It is considered to be saprophytic.

Margaret Dick

NEW RECORDS

We are no longer publishing details of new records. For further information on results of MAFBNZ funded programmes see MAFBNZ's Biosecurity magazine (http://www.biosecurity.govt.nz/publications/biosecurity-magazine/index.htm) where information on new biosecurity identifications is regularly published.

John Bain

Printed by Scion Digital Print Centre, Rotorua (07-343-5711)