

GLOBAL EFFORT NEEDED TO PROTECT NEW ZEALAND'S TREES AND FORESTS

Principal Scientist and entomologist, Ecki Brockerhoff co-authored a paper in the prestigious journal "Science" that discusses the need for a strategy to keep planted forests healthy. The most important conclusion was that biosecurity is only as strong as the weakest link. Many countries don't have the resources to carry out biosecurity measures and responses, and that increases the risk of pest establishment and further spread. Once a pest or pathogen establishes somewhere, that region or country can then act as a bridgehead for invasions to other regions. New Zealand has some of the best biosecurity practices in the world, but single country strategies may not be sufficient as the threats to both planted and indigenous forests increase with increasing globalisation and international trade. The authors suggest that one answer is to enhance global collaboration to share local knowledge and biosecurity expertise. There is a need for more coordination and dedicated funding mechanisms to support a global strategy for dealing with invasive forest pests and pathogens.

Wingfield, M.J., Brockerhoff, E.G., Wingfield, B.D. & Slippers, B. (2015). Planted forest health: The need for a global strategy. *Science*, 21 August 2015, **349** 6250, pp. 832-836. DOI:10.1126/science.aac6674

Or <http://www.sciencemag.org/content/349/6250/832.full>

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Removing olives in southern Italy. Photo: Gaetano Lo Porto/AP

LESSONS FROM A RECENT INCURSION ON OLIVES IN ITALY

The plant pathogenic bacterium *Xylella fastidiosa* attacks olives and a wide range of woody plants, grasses, legumes and other plants. Its first detection in Europe in the field was on olive trees in Italy in October 2013. It has recently been recorded in Corsica. What has this to do with forest health in New Zealand?

Firstly, the main entry pathway for *X. fastidiosa* into Europe was determined to be the movement of plants for planting. This is an unlikely entry pathway for pests or pathogens into New Zealand, because of the Ministry for Primary Industries' import health standards and border protection activities. Their stringent treatment here has been brought about in part because of the experience in Europe where many pests and pathogens have been introduced through this pathway.

Secondly, the European situation had a number of political ramifications. The detection resulted in European Union regulations to limit further spread, including pesticide application and destruction of trees. Farmers and environmentalists objected strongly to these actions, and this may have thwarted efforts to limit pest impacts while that was still possible. In April 2014 researchers were blamed for the introduction of the bacterium into Italy, with the suggestion that it escaped after being deliberately brought in from California for a workshop on *Xylella* in 2010. This led to an investigation by public prosecutors, with scientists being summoned for questioning by the police and confiscation of documents and computers! The investigations have not reached a conclusion. However, the allegation that scientists were responsible for the introduction has been debunked by the finding that the strain in Italy matches an endemic strain from Costa Rica and does not match the strain brought in for the workshop.

In New Zealand, Government Industry Agreements are being established in the primary sectors, including forestry, so that we are well prepared for incursions and the Government and stakeholders work in partnership to decide on the most appropriate response to a new incursion. This model contrasts to the situation in Italy above where quite the opposite has happened.

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SCALE INSECT ON KAURI

A suspected new to New Zealand scale insect on kauri (*Agathis australis*) was reported to the Ministry for Primary Industries (MPI) in July 2015. The scale insect was collected from street planted kauri in central Auckland city, and was identified by the collector as *Leucaspis* sp. (Hemiptera: Diaspididae). A check of the MPI Plant Pest Information Network database showed that a new host record of *Leucaspis* sp. on kauri from the same location had previously been reported by Scion in 2014. The 2014 collection was made by SPS Biosecurity as part of the MPI High Risk Site Surveillance programme.

The scale insects collected in July 2015 have now been identified by the MPI Plant Health and Environment Laboratory (PHEL) as *Leucaspis portaeaeureae* Ferris 1942. Identification was achieved by morphological comparison to identified specimens of *L. portaeaeureae* held in the New Zealand Arthropod Collection at Landcare Research, and by molecular comparison to additional specimens of *L. portaeaeureae* re-collected from other known hosts in New Zealand. During the MPI investigation into this case, specimens of *L. portaeaeureae* were confirmed from kauri and other known native host species from multiple locations around the Auckland region. Reported hosts for this scale insect include *Podocarpus acutifolia* [sic.] (Ferris, 1942), and *Podocarpus nivalis*, *Podocarpus totara*, and *Prumnopitys taxifolia* referenced on Landcare's Plant-SyNZ™ database. Based on available evidence PHEL considers this scale insect most likely a New Zealand native species.

Levels of infestation of this scale insect on kauri ranged from heavy in central Auckland city (Figure 1) to low or apparently absent elsewhere in Auckland. Small chlorotic patches were seen around the scale insects on some infested leaves. A number of contributing factors, such as environmental conditions or nutritional deficiencies, may have led to the higher levels of infestation on trees growing on certain sites.

The New Zealand fauna of *Leucaspis* is currently in a confused state. It appears to be a particularly speciose genus in New Zealand, with Henderson (2011) suggesting as many as 50 species but with most undescribed. PHEL is currently working on publishing a summary of their results of this investigation and information about this scale insect species in New Zealand.

Ferris, G.F. 1942. *Atlas of the scale insects of North America*. Series 4. Stanford University Press, Palo Alto, California.

Henderson, R.C. 2011. Diaspididae (Insecta: Hemiptera: Coccoidea). *Fauna of New Zealand* 66, 275pp.

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Figure 1. *Leucaspis portaeaeureae* on street-planted *Agathis australis* in Auckland City (Photo: MPI)