Forest Health News

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ERADICATION OF *PAROPSISTERNA BEATA*

Paropsisterna beata, an Australian eucalyptus leaf beetle, was detected on a small woodlot of large (20-30m tall) *Eucalyptus nitens* in Upper Hutt, Wellington in 2012 (Forest Health News 233). Although a number of eucalyptus leaf beetles are present in New Zealand, including *Paropsis charybdis, Trachymela sloanei* and *Trachymela catenata,* a cost benefit analysis carried out by the Ministry for Primary Industries (MPI) estimated significant economic losses to the forest industry could result if this additional pest were allowed to establish and reduce wood pulp production. The eradication campaign began in February 2013 with a delimiting survey by either felling, climbing or inspecting from the ground, trees within a radius of up to 3 km from the first find. A further seven surveys within the central zone used other methods, including bark inspection to look for overwintering adults, sticky bands on the stem and light traps. Treatments first involved broadcast applications of the synthetic pyrethroid alpha-cypermethrin by helicopter (Yamoah et al 2016). Scion then developed a new spot-spraying technique using just two nozzles mounted on one side of the helicopter boom to enable applications to be targeted into the individual crowns of large trees. In addition, ground sprays of bifenthrin (Talstar) targeted the stems and leaf litter layer where adults and larvae may have been resting. MPI have now declared this eradication successful, with no beetles found since October 2013. This is great news for *Eucalyptus* growers throughout New Zealand.

***Paropsisterna beata* adult (photo : Martin Lagerwey).**

Reference. Yamoah et al. 2016. Eradication of *Paropsisterna beata* (Newman) (Coleoptera: Chrysomelidae) in a semi-rural suburb in New Zealand. *New Zealand Journal of Forestry Science* 46:5. Available online: http://link.springer.com/article/10.1186%2Fs40490-016-0061-3

Toni Withers

FOREST SURVEILLANCE REVIEW UPDATE

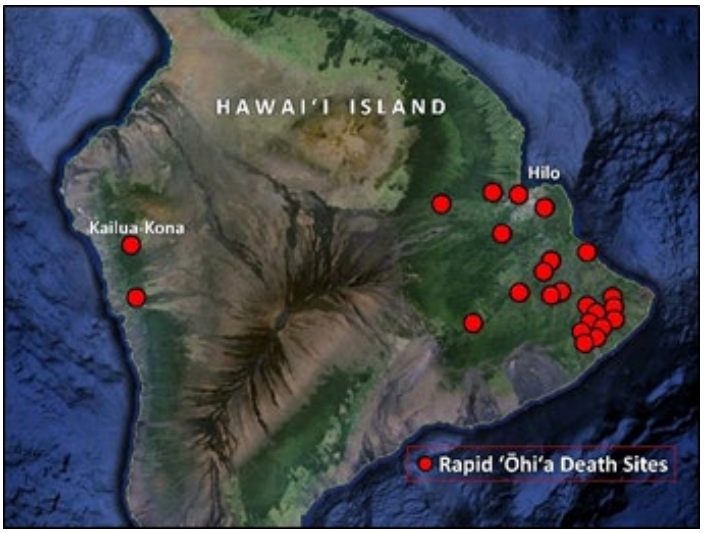
In 2015, work started in earnest to review and improve the NZ Forest Owners Association (NZFOA) forest health surveillance scheme. The objective was to develop a system where deployment of surveillance components (such as walk, drive and aerial surveys) is higher in areas that have the greatest risk of first receiving new pest incursions.

This may appear to be simple, but a great deal of science is needed to underpin an optimised surveillance system. Pests from overseas can find their way into New Zealand via a number of different pathways. Hence it is important to identify the pathways on which different pests can arrive, and their infestation rate. Explicit models are then designed to span the movement of the imported commodity and estimate the number of uncontrolled pest releases, starting from the commodity's arrival at the border and then going through a sequence of transit locations within the country. Pest biology parameters and relevant environmental factors are also considered, to estimate the stage of development of the organism along the pathway sequence, and its probability of establishing a permanent population (e.g. given suitable climate and host plant availability).

To date, we have completed models for four pests of significance to forestry. The models were developed by evaluating pathways by which gypsy moth, Asian longhorn beetle, *Phytophthora ramorum* (the cause of sudden oak death) and an unspecified stem canker pathogen could enter the country. The number of those pests that could escape at various points along their pathways was estimated and from that, the probability of entry for each

of almost 2000 "area units" in the country was estimated. Host and climate suitability models have been identified and will be incorporated to allow the probability of pest establishment to be estimated. From there, survey effort will be optimised using a model that accounts for survey cost and method, survey efficacy and pest risk. The terms of reference included the MPI's High Risk Site Surveillance scheme and commercial forestry plantations that are currently outside the existing NZFOA scheme. The work is funded by NZFOA, MPI, and Scion and AgResearch core funding aligned with the Better Border Biosecurity (B3) collaboration.

In late March, researchers from Scion and AgResearch will meet with Australian collaborators (Centre of Excellence in Biosecurity Risk Analysis, Bayesian Intelligence) to finalise details of the optimisation model and to elicit expert advice from stakeholders.



Map of current areas of infestation, October 2015. State of Hawaii, Department of Agriculture website: http://hdoa.hawaii.gov/blog/main/reportingohiawilt/

Ceratocystis fimbriata is a species complex, which has representatives that affect a very wide range of hosts. In Hawaii, it has been known for a number of years on sweet potato, and has been recorded on kumara in New Zealand. Another *C. fimbriata* type has caused serious damage to kiwifruit in Brazil over the past five years. Through contact made at the Annapolis Forum, we are keeping a watching brief on the *Metrosideros* disease in Hawaii and have asked researchers there to keep a lookout for signs of disease on our native *Metrosideros* species growing in Hawaii.

Lindsay Bulman

SPREADING DISEASE IN HAWAII *METROSIDEROS* FORESTS

In January 2016, Lindsay Bulman was invited to present an overview of the NZ forest biosecurity surveillance review at the New Zealand – United States Joint Commission on Science and Technology Collaboration session at the USDA Invasive Species Forum in Annapolis, Maryland. The comments received after the presentation made it clear that New Zealand is leading the way in developing national forest pest detection surveillance systems (see surveillance update, in this FH News issue).

There were a number of interesting presentations at the forum. Of particular interest to New Zealand was the development of a disease on *Metrosideros polymorpha* associated with *Ceratocystis fimbriata* in Hawaii. The pathogen has the ability to kill trees within weeks. This disease was first confirmed in 2015, but has been present since at least 2013. It is still confined to the island of Hawaii, but it is spreading quickly and an aerial survey confirmed most of the island's *Metrosideros* forests are now infected.

FOREST PROTECTION ANNUAL REPORT 2015

The 2015 Forest Protection Annual Report has been published. Download from Scion website [www.scionresearch.com/fpsciencereports], or contact obrienr@scionresearch.com for a hard copy.

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