



Beetle discovery demonstrates the power of citizen science

Citizen science has once again proven its value, with the detection of another new-to-New Zealand organism. On October 25th 2018, iNaturalist NZ user *jacqui-nz* recorded a leaf beetle (Chrysomelidae) in the suburb of Kelston, Auckland. Although there is nothing to suggest that the uploader considered the beetle to be anything unusual, the observation quickly attracted the attention of Stephen Thorpe, who recognised the beetle as an unfamiliar member of the Australian genus *Peltoschema*. He notified MPI of the find as a suspected new incursion and it has now been formally identified by them as an undescribed species of *Peltoschema* near *P. orphana*.



Adult *Peltoschema* sp. on an *Acacia longifolia* phyllode.

Subsequent searches for the species in Auckland by Stephen Thorpe and MPI have found adults to be consistently present on *Acacia longifolia* in several suburbs, including Kelston, Glen Eden, Titirangi, New Lynn, Blockhouse Bay, Onehunga, Point Chevalier and Auckland Central. The full extent of its distribution in New Zealand has yet to be determined. Only adults have been observed so far.

The species is morphologically extremely similar to *P. orphana* (which is not present in New Zealand), however *P. orphana* is

restricted to bipinnate wattles, whereas this species has only been found on *A. longifolia*, which has phyllodes. Two other species of the genus have been recorded from New Zealand, *P. suturalis* in Wellington (eradicated), and also another much smaller undescribed species which was first recorded in Auckland in 1976 and which is now very common.

Stephen Thorpe
(independent researcher)
& Andrew Pugh (Scion)

Downscaling for higher throughput and reduced resource use – new fungicide sensitivity assay

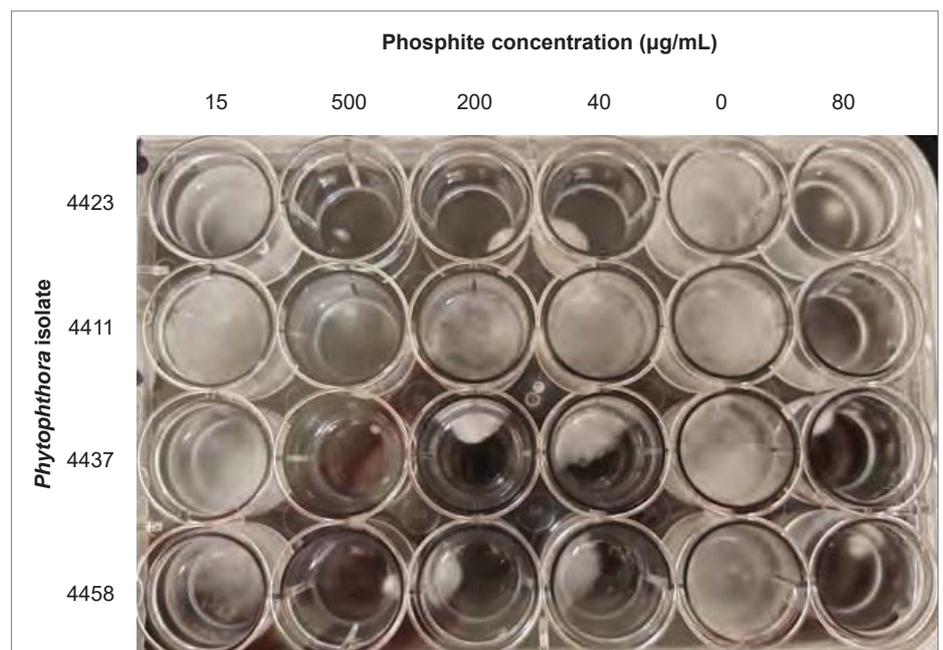
A high-throughput bioassay to screen sensitivity of species of *Phytophthora* to fungicides has been developed¹. The research by Scion-based Master of Science student, Shannon Hunter, uses a plate reader machine and optical density measurements to quantify the amount of mycelial growth in liquid media with various fungicide concentrations.

Phosphite was utilised in this experiment because it is used to control *Phytophthora* diseases in a range of horticultural crops, forest nurseries, and culturally and ecologically important plant species. In New Zealand, phosphite is used to control avocado root rot. It also has the potential to be used to protect iconic individual kauri trees from kauri dieback, caused by *P. agathadicida*.

The new bioassay was compared to two widely used methods, dry weight and linear growth assays. Dry weight assays required cultures to be grown in liquid media (at least 20 ml) and then drying the cultures in an oven and weighing them. Linear growth assays involve growing cultures on solid media in a Petri dish and measuring the diameter of the colony.

The optical density assay developed was just as effective at measuring chemical inhibition of *Phytophthora* as the other two methods and it has the added benefits of requiring fewer resources and less time, providing a higher through-put of samples and allowing for multiple measurements over time.

Shannon Hunter (Scion)



Growth of *Phytophthora cinnamomi* mycelium after 6 days in liquid media (*Ribeiro minimal media* containing 0, 15, 40, 80, 200 and 500 µg ml⁻¹ phosphite).

¹ Hunter, S.; McDougal, R.; Clearwater, M.J.; Williams, N. & Scott, P. (2018) Development of a high throughput optical density assay to determine fungicide sensitivity of oomycetes. *Journal of Microbiological Methods*. 154, 33-39.

Forest Protection in the awards again

At this year's New Zealand Biosecurity Awards, our entry "Protecting New Zealand's primary sector from plant pests: A toolkit for the urban battlefield" won the Biological Heritage Challenge Science Award. This research program aims to improve pest eradication through the development of faster and more accurate identification of new pests, more effective methods of eradicating pests once they are found, and ensuring there is social license to quickly implement an eradication programme. Congratulations to all the researchers involved in this ambitious research programme!

The 2018 NZ Arboricultural Association Annual Conference

The 340 attendees were piped into the Dunedin Town Hall for the NZ Arboricultural Association's Annual Conference 8-10

November 2018. With the bagpipes, plus the theme of 'connecting people, ideas and communities', I knew immediately this was going to be no ordinary conference.

Ted Green, from England and the President of the Ancient Tree Forum (www.ancienttreeforum.co.uk) was up first with a talk entitled 'The importance of ageing gracefully'. Ted challenged our views about 'what a tree is' looking upon trees as a unique and dynamic support system for fungi – music to a tree pathologist's ears!

The other keynote speaker was Ed Gilman from the University of Florida, author of the book *An illustrated guide to pruning*. Pruning is an art and is very important to arborists. Many factors, such as tree form, strength and safety, must be considered by arborists during pruning.

Several talks focused on the safety and legal status of urban trees, and the difficulty this raises for councils. It was interesting to hear another perspective, as the Scion Forest Health Reference Laboratory is sometimes asked to assess urban trees for the presence of decay fungi.

Dr Neil de Wet (Toi Te Ora Public Health) in his plenary talk entitled 'Biophilic public health: kaka kauri and our health expectancy' gave us another perspective on the role of trees in people's wellbeing. It was encouraging to be reminded that trees have greater value than just their timber.

Other talks included the A-Z of report writing, using electrical resistivity to track the spread of decay and the methodologies of amenity tree evaluation. The value of amenity trees was highlighted by field trips to notable Dunedin trees.

The enthusiasm of the young arborists, both in completing quizzes and in the tree climbing competitions was contagious, and culminated in the conference dinner and awards.

It was an honour to present a talk on 'Tree diagnosis in the Forest Health Reference Laboratory' and to highlight some diseases not currently present in New Zealand that arborists need to be looking out for.

Judy Gardner (Scion)

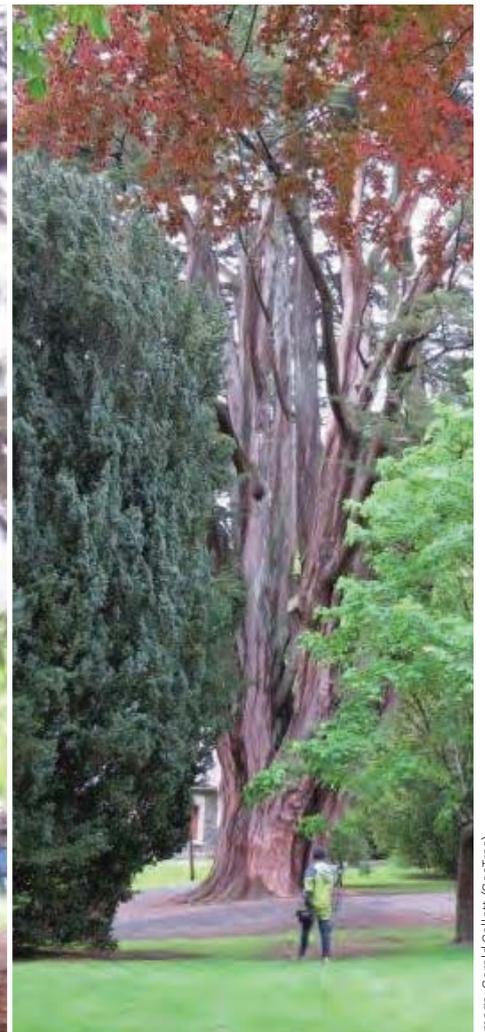
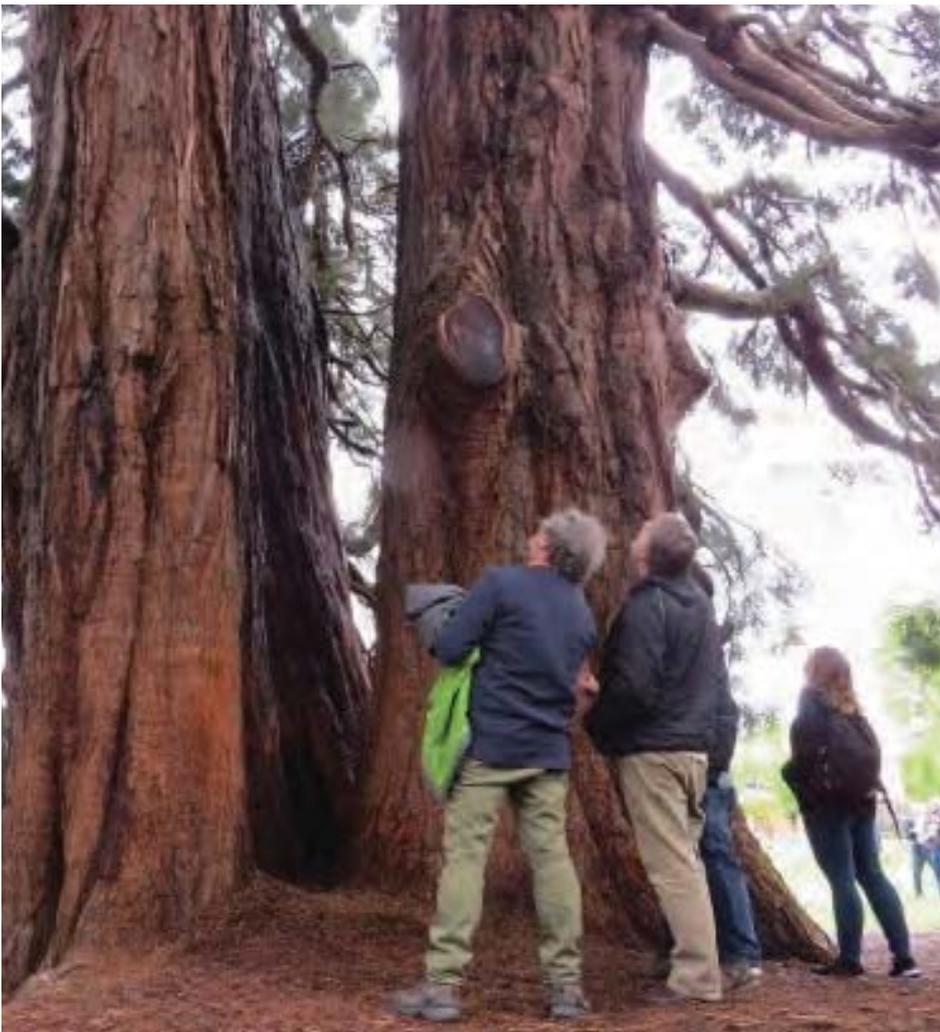


Image: Gerald Collett (@Geotree)

Attendees admiring a *Sequoiadendron giganteum* in Arthur Street Reserve and a *Cupressus macrocarpa* at Chingford Park.