Pre-emptive biocontrol and plant sentinels

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The potential for novel pests to attack indigenous plants can be examined in non-native ranges of these plants. Perennial native New Zealand plant species growing in botanic gardens and on public spaces in southern California have been used to explore new associations between these plants, the bacterium *Xylella fastidiosa* and its vector, the invasive insect pest, *Homalodisca vitripennis* (the glassy-winged sharpshooter), both of which are not yet present in New Zealand. Further, the biocontrol potential of egg parasitoids against *H. vitripennis* on New Zealand plant hosts in southern California was investigated, by examining 102 samples of plants from 39 species and 22 plant-families. DNA analysis confirmed presence of *X. fastidiosa* in 51% of the samples and in 72% of the species. Of the egg masses collected to examine parasitism levels, 62% were parasitised, and on average 75% of the eggs per egg-mass were parasitised. This paper makes the case for the inclusion of biocontrol as an early-response strategy against *H. vitripennis* should this pest invade New Zealand, and the steps required to make biocontrol part of a rapid-response management plan should an incursion and localized establishment occur will be outlined. Several other arthropods that have become invasive elsewhere could also become pests in New Zealand, should they arrive here. They would put at risk sectors of New Zealand's primary industries as well as our natural environment. Examples include the Asian citrus psyllid *Diaphorina citri* on citrus and on indigenous plants in the family Ruteace, and the Tasmanian *Kalambothrips* currently devastating New Zealand *Myoporum* (ngaio) in California and endemic *Myoporum* in Hawaii, the brown marmorated stink bug *Halyomorpha halys*, and the spotted wing drosophila, *Drosophila suzukii*. This paper concludes that pre-emptive biocontrol should become an important component of the early response plan against these and other pests.