Opening Pandora’s box? Surveys for attack on non-target plants in New Zealand

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The environmental safety record of weed biocontrol has recently been questioned when examples of damage to non-target plants were reported overseas. We review previous records of non-target attack and present the results of recently conducted systematic surveys to look for additional evidence of non-target damage caused by weed biological control agents that became established in New Zealand between 1929 and 2001. Our findings are discussed to determine the reliability of host-specificity testing and overall safety record of weed biological control in New Zealand and to ascertain whether lessons can be learnt that will enhance the safety of future weed biocontrol programmes.

New biological control agents for Cytisus scoparius (Scotch broom) in New Zealand: dealing with the birds and the bees and predicted non-target attack to a fodder crop

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The invasive European shrub Scotch broom has detrimental impacts on farming, forestry and conservation in New Zealand. The current suite of biological control agents does not damage plants sufficiently over the entire growing season to have a major impact on broom populations and the release of additional agents: a chrysomelid leaf-feeding beetle Gonioctena olivacea Förster and an oecophorid stem-tying moth Agonopterix assimilella Treitschke was proposed. Both are narrowly oligophagous, with the potential to develop on a few closely related plant species within the tribe Genisteae. New Zealand has no native Genisteae but an exotic species, tagasaste (tree lucerne, Cytisus proliferus L.f. var palmensis H. Christ) is closely related to Scotch broom and may be affected by non-target damage. This is undesirable because tagasaste is planted to stabilize soil on marginal hill country and is a minor fodder crop in New Zealand. Furthermore, broom is valued as a pollen source by the beekeeping industry and its pods form a seasonally important food source for kererū (an endemic pigeon Hemiphaga novaeseelandiae). We describe a benefit/cost analysis and ecological studies performed that paved the way for the release of G. olivacea and A. assimilella in New Zealand despite objections to their use.