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JACARANDA LEAF MINER IN NEW ZEALAND

Jacaranda is a large genus of flowering shrubs and trees native to South America. At least three species are known to be present in New Zealand (Chris Ecroyd, pers. comm.) but the blue flowering *Jacaranda mimosifolia* is by far the most commonly planted, being recognised as one of the world's most beautiful flowering trees.

In the Auckland area *Jacaranda* normally stays in leaf well into July, so it was unusual to see many of these trees losing their leaves this past April. A close examination of the bipinnate leaves revealed extensive leaf mining with affected leaves being shed prematurely (Figs. 1 and 2).

A leaf mining fly, *Phytoliriomyza jacarandae* (Agromyzidae), was identified as the causal agent by Scion. Young larvae of this species produce linear brown mines in the jacaranda leaflets, which develop into irregular blotches. Affected leaves fall prematurely and larvae pupate in the soil. *Phytoliriomyza jacarandae* is a South American species also known to occur in Australia, New Zealand, South Africa, USA and Europe (Bella 2007).

Records from Scion's Forest Health Database indicate that this insect has been present in New Zealand since at least 1995, although it was previously misidentified. This

Figure 1: Extensive leaf mining by *Phytoliriomyza jacarandae* with associated brown blotches.

first record was from Napier and it was next found in Tauranga in 1999, followed by Auckland in 2000. The first record for the South Island was 2003 when it was found in Nelson (Ministry of Agriculture and Forestry, Plant Pest Information Network record) and it was also

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Figure 2: The same tree showing premature leaf fall in April.

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found in Gisborne in the same year (Nicholas Martin, pers. comm.). Most recently, it was recorded in Whangarei in 2004.

This past summer the leaf miner became widespread in the Mt. Albert area of Auckland in sufficiently high numbers to cause extensive premature leaf fall. *Jacaranda* is normally pest free and it may be that the unusually hot and dry summer of 2009-2010 encouraged this outbreak.

From the collection reported here and previous ones (Nicholas Martin, pers. comm.), two unidentified parasitic wasps have been reared. A study characterising the parasitoid complex of *P. jacarandae* in Argentina, found that two species were dominant, *Chrysonotomyia thysanoides* and *Diglyphus websteri* (both Eulophidae) (Salvo & Valladares 1997), thus it is possible that these are the two species present here. The same study showed that parasitoid density closely followed that of the host, providing effective control. With any luck we will see the same trend in Auckland and elsewhere in New Zealand.

Chris Inglis, SPS Biosecurity and *Stephanie Sopow*

References

Bella, S.; Mazzeo, G. Süss, L. 2007. First record for the European fauna of *Phytoliriomyza jacarandae* Steyskal & Spencer, 1978 (Diptera Agromyzidae) leafminer of *Jacaranda mimosifolia* D. Don. (Bignoniaceae). Bollettino di Zoologia Agraria e di Bachicoltura, Serie II, 39(1), 75-78.

Salvo, A. and Valladares, G. 1997. Regulation of *Phytoliriomyza jacarandae* (Diptera: Agromyzidae) by parasitoids (Hymenoptera: Chalcidoidea) in Cordoba, Argentina. Acta Entomologica Chilena 21: 75-79.

PREDICTING THE VULNERABILITY OF PINUS RADIATA TO *HYLOBIUS ABIETIS*

For 10 weeks during the 2006/07 season Dr David Wainhouse (UK Forestry Commission) visited Scion, under the auspices of an Organisation for Economic Co-operation and Development Fellowship, to investigate the potential resistance of young *Pinus radiata* to the European pine weevil, *Hylobius abietis*. The results of this work have recently been published in *Forestry*[1].

Hylobius abietis is an important pest of Northern European conifers and a significant biosecurity threat to countries such as New Zealand where commercial forestry is largely dependent on *Pinus radiata* monocultures. In Europe it is associated principally with *Pinus* spp., especially *Pinus sylvestris*, but also infests other conifers including *Picea* spp. and *Pseudotsuga menziesii*. The weevil breeds in stumps and slash that is contact with the ground. The adults feed on the young bark of living branches and shoots including that of young seedlings. The seedlings are often ring-barked and killed.

Assessing the likely impact of pine weevil in the event of accidental introduction is an important part of contingency planning. The economic impact of this insect depends upon its abundance and the degree of resistance of young plants to adult feeding.

The resistance of radiata seedlings was assessed by measuring the size of resin ducts of the main stem and the mass of resin flowing from simulated feeding damage. It was found that the resin flow relative to duct area was much lower in radiata pine than in *Pinus nigra* grown in the UK that are known to be resistant to weevil feeding. He concluded that NZ radiata pine transplants would be highly susceptible to *H. abietis*.

Analysis of weather data from Whakarewarewa and Taupo during spring and autumn indicated that development of *H. abietis* could be completed in less than a year. Estimates of the nitrogen content of *P. radiata* bark indicated that it would not be a limiting factor for weevil egg maturation.

Local population density of *H. abietis* is determined by the abundance of pine root-stumps after clearfelling. However, *H. abietis* larvae are likely to face competition from previously introduced bark beetles, and possibly also fungi, that rapidly exploit the bark of root-stumps after felling in New Zealand. In particular, competition with the benign *Hylurgus ligniperda*, which has an early spring flight and potential for two generations per year, is likely to reduce the breeding resource available to *H. abietis*.

Nod Kay

[1]Wainhouse, D.; Reay, S.; Kay, M. 2010. Predicting the vulnerability of New Zealand radiata pine plantations to the European pine weevil. Forestry 83 (3): 277-283.

At right: European pine weevil, *Hylobius abietis*

NEW RECORDS

We are no longer publishing details of new records. For further information on results of MAFBNZ funded programmes see MAFBNZ's Biosecurity magazine (http://www.biosecurity.govt.nz/publications/biosecurity-magazine/index.htm) where information on new biosecurity identifications is regularly published.

John Bain

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