

LATEST ON MYRTLE RUST

The rapid spread of myrtle rust in Australia and its discovery over the past few years in South Africa and New Caledonia demonstrate the invasiveness of this disease. Myrtle rust, caused by *Puccinia psidii*, has been recorded on over 440 species, all in the family Myrtaceae. The disease damages foliage and shoots, and in some cases flowers and fruit. Severe disease will cause tip dieback and shoot death. While the disease rarely kills adult plants, extremely susceptible species may be threatened. For instance the Malabar plum, or rose apple, *Syzygium jambo*, which is exotic in Hawaii, suffered widespread dieback and death there following the introduction of myrtle rust.



***Puccinia psidii* damage on guava in Brazil (left) and on Malabar plum in Hawaii (right). Pictures, Jonas Janner Hamann, Universidade Federal de Santa Maria, Bugwood.org (left), Forest and Kim Starr, Starr Environmental, Bugwood.org (right).**

The rust may inhibit reproduction and affect regeneration leading to displacement of susceptible hosts in an affected ecosystem. There are fears that may happen in Australia, where about 10% of the native plants are in the Myrtaceae family.

First described in Brazil in 1884, the rust was recorded from Central America, Florida and Mexico by the 1970s. There has been a rapid expansion over the past 10 years, primarily through the live plant trade. Myrtle rust has been recorded from Hawaii (2005), Japan (2007), southern China (2009), Australia (2010) in NSW and then Queensland in the same year, followed by Victoria in 2011 and most recently Tasmania in February 2015. In 2013, it was reported from both South Africa and New Caledonia. In Australia, it was first noted in Eucalyptus plantations in 2011, about 20 months after its discovery in the country. By 2014, myrtle rust was recorded in only

a few plantations and only when the plantations bordered native forests that had a large number of susceptible hosts. Disease levels in plantations were low.



***Puccinia psidii* on *Rhodamnia angustifolia* (an endangered native species in Queensland, Australia). Initial detection in March 2011 (a), high level of infection in December 2011 (b) and January 2012 (c), followed by foliage and branch dieback in June 2012 (not shown). Adapted from G. S. Pegg et al. *Plant Pathology* (2014) 63, 1005–1021.**

The rust is predicted to be able to survive in nearly all of New Zealand although warmer areas are more suitable. It poses a threat to many of our native myrtles such as rata, pohutukawa, manuka, and kanuka, as well as eucalypt growers and the honey industry. The Ministry for Primary Industries has been active in preventing the establishment of the rust in New Zealand. Shortly after its discovery in Australia all imports of whole plants and cuttings from Australia were banned. Cut flowers and foliage of the Myrtaceae family from New South Wales, Queensland and Victoria have been prohibited from importation into New Zealand due to the risk of transmission, and in February this ban was extended to Tasmania in immediate response to the discovery there.

Lindsay Bulman

ANTHIDIUM MANICATUM TAKES NEW ZEALAND BY FORCE

Scion's Forest Health Reference Laboratory offers diagnostic services for organised forest health surveillance in New Zealand and, in addition, the Ministry for Primary Industries funds the identification of samples submitted to Scion by the public. These are anything deemed unusual and suspected of being new to the country, and indeed members of the public have made some highly significant finds such as the white spotted tussock moth and the painted apple moth. Sometimes

these samples aren't significant and yet they are worthy of noting.

Between late February and mid-March, Scion received several queries from the public regarding a bee demonstrating conspicuous aggressive behaviour and nesting in unusual places. This bee, *Anthidium manicatum*, originates from Europe, North Africa and Western Asia. It has also been introduced into North and South America, and is a relative newcomer to New Zealand where it appears to have made itself right at home in a short time.

Established populations of the bee were first found in New Zealand in Napier and Nelson in 2006. By 2012 it was known from Whangarei to Christchurch. The first time it was found in Rotorua was in 2013 and Scion had received no further samples until again this year, during which several samples were collected at distances of up to 16 km away in different directions from the original Rotorua find. This suggests that the population is now well established in the area.

Anthidium manicatum is thought to be a poor disperser on its own, but nests in objects which may be moved about by humans. The nests are made in existing cavities in anything from gaps in windows to boots left outside the door. At the Rotorua Airport, the cause of a malfunctioning parking ticket machine was determined to be a nest created by a female bee that had entered through the ticket slot. The nests are recognizable because they appear to consist of fuzzy balls of wool. The female bee harvests plant "hairs" for the nesting material, earning these bees the common name "wool carder bees".

These solitary bees feed on nectar and pollen and the males are extremely aggressive defenders of flower patches. They are associated with flowers belonging to the families Lamiaceae and Plantaginaceae (many of which were previously classified as Scrophulariaceae), and seem to have a preference for purple. The males are known to attack other insects that come near, knocking them out of the way and often ripping through wings using spines at the tip of their abdomen.

A New Zealand study (Soper & Beggs, 2013) found that the bees interacted to a much greater degree with other exotic insect species, and concluded that they are likely to have little impact on New Zealand's native bee fauna. However, they could potentially impact honey production in New Zealand since the honeybee, *Apis mellifera*, has been observed to be one of the most attacked species here along with bumblebees (*Bombus* spp.).

Both honeybees and wool carder bees are very effective pollinators of exotic flowers and crops in New Zealand, including weed species. It will be interesting to follow the interaction between the two.



Male *Anthidium manicatum* (note spines on abdomen with which it attacks other insects). Picture, T.E.R.R.A.I.N - Taranaki Educational Resource: Research, Analysis and Information Network.

For further reading see also The New Zealand Gardener, April 2015.

Reference: Soper J, Beggs JR. 2013. Assessing the impact of an introduced bee, *Anthidium manicatum*, on pollinator communities in New Zealand. *New Zealand Journal of Botany* 51(3): 213-228.

Stephanie Sopow

WEB-BASED INTERFACES FROM OVERSEAS CONTAINING PEST-SPECIFIC INFORMATION

In Australia, PaDIL (Pest and Disease Image Library) is an initiative of the Australian Government's Department of Agriculture. It emphasises delivering high quality diagnostic images for biodiversity and biosecurity. <http://www.padil.gov.au>

In Europe, The EPPO (European and Mediterranean Plant Protection Organization) Global Database currently contains basic information for more than 60 000 species of interest to agriculture, forestry and plant protection. Detailed information is provided for more than 1600 pest species that are of regulatory concern. <https://gd.eppo.int>

In North America, the Bugwood Image Database System has been set up by the Center for Invasive Species & Ecosystem Health. It provides high quality images related to silviculture, forest health and integrated pest management, including a large number of pictures of insect pests, diseases and weeds. <http://www.bugwood.org>

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