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GUAVA/MYRTLE RUST IN AUSTRALIA

In April 2010 myrtle rust (*Uredo rangelii*) was found in Australia for the first time. *Uredo rangelii* is now recognised as one of the asexual stages of *Puccinia psidii* the causal agent of guava rust which is a disease of considerable importance in some parts of the world. For the purposes of this article the fungus will be referred to as *P. psidii*.

Puccinia psidii is a foliar rust and was first recorded on *Psidium guajava* (guava) in Brazil in 1884. Its hosts are members of the family Myrtaceae. It is native to northern South America and the Caribbean and was found in Florida in 1977, Hawaii in 2005 and California in 2006. It was found in a nursery in Japan in 2007 but is thought to have been eradicated there. There have been unconfirmed reports of it in South Africa and Taiwan. It is regarded as a very serious pest in commercial eucalypt plantations in Brazil.

In Australia the rust was first found on the central coast of New South Wales on the property of a cut flower/foilage producer. Surveys over the next few months, initially focussing on areas that had received material from the source property, indicated that it was quite widespread in plant nurseries, public amenities and areas of forest. There were indications that the disease may have been present for at least two years.

It is not known how the disease entered Australia. Because rust spores are easily transported by infected plant material, contaminated clothing, equipment and by insects, wind and rain splash it was soon decided that eradication would not be possible but efforts were made to contain and slow down its spread and a national management plan is being developed.

Puccinia psidii has been recorded from a wide range of myrtaceous plants including species from the genera *Agonis*, *Callistemon*, *Eucalyptus*, *Leptospermum*, *Lophomyrtus*, *Melaleuca*, *Metrosideros*, *Syzygium*, *Syncarpia* and *Tristania*. The strain in Australia has been recorded from naturally infected *Eucalyptus agglomerata*, *E. deanei* and *E. pilularis* in New South Wales. Further eucalypt species, *E. cloeziana*, *E. globulus* and *E. grandis* have been shown to be susceptible in pathogenicity tests.

The rust produces lesions on young actively growing leaves and shoots, as well as on fruits and sepals. The

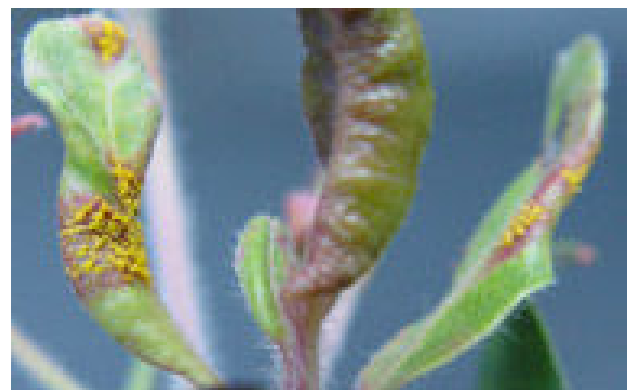
leaves may become buckled or twisted. Severe infection can kill shoot tips causing loss of leaders and a bushy habit. *Eucalyptus* species are most susceptible to infection when they are less than two years old.

Host testing studies that have been conducted outside Australia have indicated that host responses of Australian native plants to the rust infection are very varied under different conditions. The susceptibility of the same species under Australian conditions remains untested. Furthermore several races or biotypes of *P. psidii* are known to exist and the response of any host species to infection by different biotypes may range from none to severe. It is difficult therefore to predict how the disease will affect the Australian environment but given the variety and the predominance of the Myrtaceae there it could be considerable.

So what does the presence of guava rust in Australia mean for New Zealand?

The susceptibility of New Zealand plants has not been tested in inoculation trials. The main concern would be the important genera that the rust has been recorded from overseas, i.e. *Metrosideros*, *Kunzea*, *Leptospermum*, *Syzygium* and *Eucalyptus*. *Puccinia psidii* in Hawaii is affecting native myrtaceous plants including *Metrosideros polymorpha*, a dominant tree in forests there although information is sketchy on the severity of the damage. *Metrosideros excelsa* (pohutukawa) and *M. kermadecensis* (a lesser-known species indigenous to New Zealand) have both been reported as hosts to *P. psidii* in Hawaii.

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Guava rust on *Syncarpia*

Guava/Myrtle rust continued...

The spores of rust fungi are capable of long distance dispersal in the atmosphere. The fact that the poplar rust fungi *Melampsora larici-populina* and *M. medusae* arrived in New Zealand from Australia in 1973 is ample evidence of this movement. So as the populations of *P. psidii* in Australia increase it seems likely that spores of the rust will reach here when atmospheric conditions are right.

If it does arrive here there will be no shortage of suitable myrtaceous hosts so establishment would seem likely. Climate modelling has indicated that much of the North Island and parts of the South Island should be suitable for the development of the rust. As for the effects on plants here your crystal ball should provide some insight.

For further information see:

http://www.anbg.gov.au/anpc/resources.html#Key_issues
<http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust>
<http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/update>

John Bain & Margaret Dick

**GUMLEAF SKELETONIZER IN WESTERN AUSTRALIA**

The gumleaf skeletoniser (*Uraba lugens*) is an Australian defoliator that was first found in New Zealand in 1992. It is now widespread in the Auckland region and has also been recorded from Waikato, Coromandel, and Hawke's Bay. Its main hosts are *Eucalyptus* spp. but it has been recorded from *Corymbia*, *Lophostemon*, *Angophora*, *Tristaniopsis*, *Metrosideros*, *Agonis*, *Fagus*, *Liquidambar*, *Fraxinus*, *Populus*, *Betula* and *Quercus*. As yet it has not been found in eucalypt plantations in New Zealand. A braconiod parasitoid has been introduced from Australia and will be released soon.

In Australia sporadic outbreaks occur from time to time, usually at intervals of 8–10 years in eastern Australia, mainly in *Eucalyptus camaldulensis* forests. Up until the 1980s it was not considered to be a serious pest in Western Australia but between 1982 and 1992 an outbreak occurred in *Eucalyptus marginata* and *E. calophylla* forests there. At the peak of the outbreak 90,000 ha of forest were affected.

In February 2010 Western Australian Department of Environment and Conservation (DEC) was alerted to high numbers of *Uraba lugens* at two sites. One of these sites was a centre for the 1982 outbreak. During this outbreak 45 monitoring sites were set up to assess and quantify the outbreak and these have been "re-activated" by DEC to monitor the current situation. Current populations are exceptionally high and some areas of forest are completely defoliated. More detailed information should be available soon.

This outbreak in Western Australia is a timely reminder of what might happen when *U. lugens* populations eventually reach eucalypt plantations in New Zealand so we will be following the situation there with interest.

Thanks to Janet Farr, Forest Entomologist, DEC, Science Division, Manjimup for informing us of this outbreak and supplying the photographs.

John Bain

Photos at left show *Uraba lugens* damage to *Eucalyptus marginata* in Western Australia

NEW RECORDS

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

John Bain