



Fig. 1. *Uredo rangelii* on (a) *Agonis flexuosa* cv. Afterdark; (b) artificially inoculated onto *Eucalyptus pilularis*, (c) natural infection on *Rhodamnia rubescens*, leaves and stem, (d) *Rhodamnia rubescens*, fruit; (e) Urediniospores of *Uredo rangelii* from *A. flexuosa*; (f) SEM of *Puccinia psidii* urediniospores from *Psidium guajava* in Brazil, with tonsure arrowed. Photos: A. Carnegie, Industry & Investment, NSW (a, b, c and d), M. Glen, University of Tasmania (e) and R. Graça, Federal University of Viçosa (f).

Common Name: Myrtle rust

Disease: Rust in a wide range of Myrtaceous species

Classification: K: Fungi, D: Basidiomycota, C: Pucciniomycetes, O: Pucciniales, F: Pucciniaceae

In April 2010, a rust disease was observed on *Agonis flexuosa* cv. Afterdark (Fig.1a) on a NSW property (Carnegie *et al.*, 2010). The pathogen was identified, based on urediniospore morphology, as *Uredo rangelii*. This species was distinguished from *Puccinia psidii* Winter (see Pathogen Of The Month for May 2010) on the basis of a tonsure on the urediniospore (Fig. 1e) (Simpson *et al.*, 2006). However this is known by South American plant pathologists to be a variable characteristic of *Puccinia psidii* urediniospores (A. C. Alfenas, pers. comm.). Additionally, DNA sequencing of three gene regions, rDNA ITS, elongation factor 1- α and β -tubulin, failed to distinguish *Uredo rangelii* from *Puccinia psidii*, even though these regions reliably discriminate other rust species, including cryptic species that are morphologically difficult to distinguish.

Host Range:

16 species of Myrtaceae have been found naturally infected in NSW, including species of *Agonis*, *Austromyrtus*, *Callistemon*, *Leptospermum*, *Lophomyrtus*, *Melaleuca*, *Metrosideros*, *Rhodamnia*, *Syncarpia*, *Syzygium* and *Tristania*. Naturally infected eucalypts have not been found in NSW, though host testing has shown that seedlings of *Eucalyptus agglomerata*, *E. cloeziana*, *E. globulus*, *E. grandis* and *E. pilularis* are susceptible to the NSW strain (Fig. 1b). See also Zauza *et al.*, 2010.

Impact:

This pathogen is now in National Parks and State Forests on the NSW central coast and is likely to spread throughout climatically suitable regions of Australia (Glen *et al.*, 2007). While eucalypts are only susceptible to *P. psidii* up to approx. 2 years of age, mature plants of other hosts, including *Melaleuca quinquenervia* and other ecologically

significant species, may be infected. Severe infections of seedlings and repeated defoliations of older plants may result in host death.

Key Distinguishing Features:

Few rusts are recorded on Myrtaceae. These include *P. cygnorum*, a telial rust on *Kunzea ericifolia*, and *Physopella xanthostemonis* on *Xanthostemon* spp. in Australia. In Brazil, *Phakopsora rossmaniae*, or more often, its uredinial stage, *Physopella jueli*, occurs on *Campomanesia* spp. Rust on any Myrtaceae host that is not one of the above is likely to be *P. psidii*. Distinguishing features include microscopic characters of urediniospores and urediniosori.

Control:

Chemical control is unlikely to be economically or environmentally feasible for broad-scale application to plantations or native vegetation in Australia. There is a current eradication response in progress.

Further Reading:

1. Carnegie *et al.* (2010) *Australasian Plant Pathology* **39**, 463-466.
2. Dept Agriculture, Fisheries & Forestry (2010) <http://www.daff.gov.au/aqis/quarantine/pests-diseases/myrtle-rust>
3. Glen *et al.* (2007) *Australasian Plant Pathology* **36**, 1-16.
4. Simpson *et al.* (2006) *Australasian Plant Pathology* **35**, 549-562.
5. Industry & Investment, NSW (2010) <http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/weekly-updates>
6. Zauza *et al.* (2010) *Australasian Plant Pathology* **39**, 406-411.

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