



Environmental Impacts of Myrtle Rust

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Environmental impacts of Myrtle Rust

- Myrtle Rust in conservation areas
- Current host range
- Environmental impacts
- Interdepartmental government responses
- Mitigating myrtle rust in World Heritage areas
- Environmental management response

Myrtle Rust in Protected Area Estate

- Kondalilla NP (March 2011)
- Tallebudgera Creek CP (April 2011)
- Nicoll Scrub NP (April 2011)
- Springbrook NP (April 2011)
- D'Aguilar NP (June 2011)
- Beerburrum East SF (November 2011)
- Stradbroke Island (April 2012)
- Daintree NP, Smithfield CP, Kuranda NP, Baldy Mt FR (May 2012)

Environmental impacts

Myrtle rust impacts on native biodiversity in Queensland and Australia include:

- myrtaceous plant communities (*Melaleuca* wetlands, eucalypt forests and woodlands, heathlands, including EPBC listed ecological communities (e.g. *Melaleuca* woodlands NE Qld and VMA listed regional ecosystems)
- myrtaceous species listed in national and state legislation (threatened species, e.g. *Rhodamnia angustifolia*, *Gossia gonoclada*) and those that will be listed due to myrtle rust (e.g. *Rhodamnia* spp.)
- dependent native fauna (e.g. koala, gliders, insects)

What is at Risk in Queensland?

Environment at risk:

- 8.6M hectares national parks, 3.13M hectares state forest, 1M hectares of nature refuges
- On average, 75% forest is dominated by Myrtaceae species and potentially susceptible to myrtle rust
- Loss of biodiversity, including threatened and endangered species, and other unlisted species that will become threatened, and potentially ecosystems
- Impacts on flowering and seed production
- Impacts on fauna e.g. koalas
- Infected species and natural ecosystems less resilient
- Environmental implications of control measures (e.g. increased fungicide application)



Courier Mail,
Brisbane
April 2-3, 2011

Hosts of Myrtle Rust (Qld native)

<i>Acmena</i> (3w), <i>Acmenosperma</i> (1w)	<i>Lindsayomyrtus</i> (1w), <i>Lophostemon</i> (1)
<i>Archirhodomertus</i> (1w)	<u><i>Melaleuca</i></u> (13w), <i>Mitrantia</i> (1w)
<i>Asteromyrtus</i> (1)	<i>Osbornia</i> (1)
<u><i>Austromyrtus</i></u> (1w)	<i>Pilidiostigma</i> (2w)
<u><i>Backhousia</i></u> (6w)	<u><i>Rhodamnia</i></u> (13w)
<u><i>Choricarpia</i></u> (2w)	<u><i>Rhodomertus</i></u> (5w)
<i>Corymbia</i> (3w)	<i>Ristantia</i> (1w)
<u><i>Decaspermum</i></u> (1w)	<i>Sphaerantia</i> (1w)
<i>Eucalyptus</i> (7w)	<i>Stockwellia</i> (1w)
<u><i>Eugenia</i></u> (1w)	<i>Syzygium</i> (19w)
<u><i>Gossia</i></u> (10w), <i>Homoranthus</i> (1)	<i>Tristaniopsis</i> (1)
<i>Kunzea</i> (1)	<i>Uromyrtus</i> (1w)
<u><i>Lenwebbia</i></u> (3w)	<i>Waterhousea</i> (4w)
<i>Leptospermum</i> (4w)	<u><i>Xanthostemon</i></u> (3w)

60% of Qld genera, 20% of Qld species

(#) number of species known to be affected for each genus; w = WHA

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Environmental Management Response

Current actions include:

- Myrtle rust response group establish January 2011
- Staff trained in identification and hygiene
- Promote awareness to estate users (e.g. email sent to all QPWS camper bookings over Easter 2011)
- Rangers implement practical hygiene practices
- Treatment of infected vegetation “case by case” on National Parks to minimise avoidable spread by visitors



Environmental Management Response

Current actions include:

- Reduce inoculum load by removing alien susceptible species (e.g. *Syzygium jambos*) and Australian species not native to an area
- Trim or remove infected native *in situ* plants that visitors may contact
- Promote non-myrtaceous plants for park amenity areas
- If Myrtaceous plantings: then less susceptible species and local province





Lamington National Park

Mitigating impacts of Myrtle Rust Project

- Federally funded through Caring for our Country grant
- Aims to establish monitoring plots in susceptible habitat of World Heritage Areas of Queensland (Gondwana Rainforests, Fraser Island, Wet Tropics)
- Plots will be monitored to track the infection and impact of myrtle rust in WHA of Queensland
- Ecological plots currently established will also be used to monitor myrtle rust



Mitigating impact of Myrtle Rust Project

- Other sites with significant Myrtaceae species to be monitored
- Model potential long term impacts on WHA host species and dependent biota
- Results will aid in understanding the myrtle rust biology in Queensland rainforest conditions and environmental impacts



Environmental Management Response

Future response:

- Identify and protect strategic areas of conservation estate where control is practicable
- Monitor geographical spread
- Identify and record host species and their susceptibility
- Develop long-term monitoring programs to assess impact on native ecosystems and species
- Assess species and ecosystems for threatened listing for NCA and EPBC



Environmental Management Response

Future response:

- Undertake modelling to assess potential impact of myrtle rust on species (e.g. koala) and ecosystems (e.g. *Melaleuca* communities)
- Collaborate with researchers and management agencies nationally and internationally
- Active adaptive management
- Support quarantine initiatives to prevent introduction of new genotypes

