Myrtle rust

Reducing impacts through plant selection

Auckland Council
Te Kaunihera o Tāmaki Makaurau

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Background

Myrtle rust (*Austropuccinia psidii)* is a significant disease for a wide range of species within the Myrtaceae family. It originated in South America and has now spread to North America, Hawaii, New Caledonia, South Africa, Japan and Australia.

In Australia, myrtle rust has caused localised decline and large range reductions in formerly widespread species. On other species, myrtle rust, which targets new growth and fruiting bodies, has reduced fruiting and seeding to the point where no new plants are growing, meaning that extinctions in the wild are expected. As inoculum levels have risen, species that were previously relatively unaffected are now being impacted.

The pandemic strain of myrtle rust was first detected in New Zealand in 2017.

Myrtle rust will potentially have significant effects on several native species and associated ecosystems. Affected native species include pōhutukawa, rātā, ramarama, mānuka, kānuka and species dependent on these, including native mistletoe.

At this stage, commercial species such as feijoa and forestry species seem to be less affected, as they appear to be more resistant to the pandemic strain.

Possible effect on the nursery industry

In Australia, myrtle rust has affected the nursery industry through:

- Increased management and spray requirements for growing plants susceptible to myrtle rust.
- Reduced demand for plants susceptible to myrtle rust.
- Increased demand for plants resistant to myrtle rust.

Responding to myrtle rust

Two actions nurseries can take to help reduce impacts on their business are:

1. Avoid stocking species and cultivated hybrid breeds known to be susceptible to myrtle rust.
2. Replace susceptible species with resistant species.

Note that **it is illegal to distribute myrtle rust and other Unwanted Organisms under the Biosecurity Act 1993**.

Growing, stocking and selling species that are resistant to myrtle rust should help nurseries to reduce stock losses, management costs and chemical use longer-term. It will also help increase regional resilience against myrtle rust by slowing the spread and reducing levels of myrtle rust inoculum. To slow the spread of myrtle rust into natural areas, Auckland Council parks staff and Million Trees programme are **avoiding planting pōhutukawa and ramarama** for the next two years, as young trees are particularly vulnerable.

Which species are susceptible to myrtle rust?

As myrtle rust is a relatively recent arrival in New Zealand, we have limited data on which species will be most affected. Conditions here are different from other countries, so susceptibility of our plants may also be different. However, of the species confirmed as infected with myrtle rust in New Zealand, Ministry for Primary Industries (MPI) reports indicate that the most affected species to date include:

a. *Syzygium sp.*[1] (lilly pilly or monkey apple) – also note high risk of infection from contaminated pruning equipment and abundant new leaves on newly pruned trees.
b. *Lophomyrtus* x *ralphii* 'Red Dragon' and other hybrid cloned cultivars.
c. *Metrosideros*, including pōhutukawa and rātā.
d. *Agonis flexuosa* (willow myrtle).

Young growth tips, new leaves and fruiting bodies are most easily infected by myrtle rust. Nurseries, which stock large numbers of new plants, are therefore particularly vulnerable to myrtle rust outbreaks.

Species resistant to myrtle rust

Staff from Auckland Botanic Gardens and the council's Biodiversity and Arboriculture teams have recommended alternative species that are resistant to myrtle rust and provide aesthetic and / or ecological benefits.

Fast-growing hedge alternatives to *Syzygium australe*

Syzygium australe (lilly pilly) is an attractive and widely used hedging plant, but experience shows the new purple growth is highly susceptible to myrtle rust and the regular trimming required increases the chances of a hedge being infected by contaminated pruning equipment. Myrtle rust can then spread to other myrtles nearby.

Auckland Council recommends people consider <u>replacing their lilly pilly hedges</u> with alternatives that are resistant to myrtle rust.

This could impact the nursery industry by creating demand for other species, as well as reducing future demand for lilly pilly.

Staff at Auckland Botanic Gardens have recommended these three species as fast-growing hedging alternatives. They are different sizes to cater for different-sized gardens:

Camellia sasanqua 'Paradise Belinda'
Teucrium fruticans
Griselinia littoralis

[1] Note that *Syzygium smithii* is listed as a pest under the NZ pest plants accord and is an unwanted organism under the Biosecurity Act 1993.

A range of other species recommended as hedging plants by staff at Auckland Botanic Gardens:

Botanic name	**Native/ non-native**	**Height**
Camellia sasanqua 'Little Liane'	Non-native	Medium
Camellia sasanqua 'Paradise Belinda'	Non-native	Medium/tall
Camellia sasanqua 'Paradise Helen'	Non-native	Medium/tall
Camellia sasanqua 'Setsugekka'	Non-native	Tall
Camellia transnokoensis hybrid 'Transpink'	Non-native	Medium
Carpodetus serratus prostrate form	Native	Medium
Coprosma 'Beatson's Gold'	Native	Medium
Coprosma tenuicaulis	Native	Medium
Coprosma virescens	Native	Tall
Corokia cotoneaster	Native	Medium/tall
Corokia virgata	Non-native	Medium/tall
Griselinia littoralis	Native	Tall
Hebe 'Wiri Mist'	Native	Small
Hebe diosmifolia	Native	Medium
Lavandula dentata	Non-native	Medium
Melicytus obovatus	Native	Small/medium
Muehlenbeckia astonii	Native	Medium/tall
Myrsine aquilonia	Native	Small/medium
Pittosporum 'Little Squirt'	Native	Small
Pittosporum 'Wrinkle Blue'	Native	Small
Pittosporum crassifolium	Native	Tall
Podocarpus totara	Native	Tall
Teucrium fruticans	Non-native	Medium

Ornamental Trees

These star performers are plants of proven excellence in suitable conditions in Auckland and are recommended by staff at Auckland Botanic Gardens:

1. *Aloe barberae* – architectural, quite large with age.
2. *Camellia sasanqua* upright forms – various flower colours, reliable.
3. *Cercis chinensis* 'Avondale' – small vase shaped tree, early spring flowering.
4. *Lagerstroemia subcostata* – beautiful bark.
5. *Magnolia* 'Genie' – small tree, royal purple flowers.

Native trees

In garden situations, these star performers are plants of proven excellence in suitable conditions in Auckland and are recommended by staff at Auckland Botanic Gardens. They have been selected for gardens with limited space and present no issues with falling leaves or vigorous roots:

1. *Myrsine australis*, mapou – small upright dense tree.
2. *Pittosporum cornifolium,* tawhirikaro – dense, small tree, glossy foliage.
3. *Pseudopanax ferox,* toothed lancewood – tolerates wind, distinctive adult or juvenile foliage.
4. *Rhopalostylis sapida*, nikau – single trunk, tolerates sun and wind, handsome.
5. *Sophora chathamica,* kowhai – tolerates wind, attractive foliage.
6. *Piper excelsum subsp. excelsum*- deep red brown stems attractive heart-shaped leaves.

Native shrubs to increase diversity and for small gardens

1. Hebe – (*Hebe* sp.) a good, robust, reliable performer. Easy to grow, good for smaller gardens, and provides food for insects and butterflies.
2. Kawakawa (*Piper excelsum* subsp. *excelsum*) – small tree, excellent insect and bird food source.
3. Hangehange (*Geniostoma rupestre*) - small native tree, with small flowers. Fruit attracts small native birds.
4. Mahoe (*Melicytus ramiflorus*) - a medium-sized tree, can be pruned, and is hardy to most soils. Berries eaten by native birds, including tui and kereru. Can be pruned to a reasonably upright tree if started early.

Large restoration projects

For larger restoration projects, Auckland Council Biodiversity Group staff have compiled a plant list suitable for different ecotypes where, prior to myrtle rust arriving, pōhutukawa would normally be recommended. Contact biodiversity@aklc.govt.nz for advice in this context.

For more information visit myrtlerust.org.nz

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