

Ecological communities of Aotearoa / New Zealand species threatened by myrtle rust (*Austropuccinia psidii* (G. Winter) Beenken): The flora and mycobiota of the endemic genus *Lophomyrtus* Burret

By Manisha Prasad, Luzie M.H. Schmid, Andrew J. Marshall, Dan J. Blanchon, Matthew A.M. Renner, Yumiko Baba, Mahajabeen Padamsee and Peter J. de Lange

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Abstract

The invasive rust *Austropuccinia psidii*, responsible for myrtle rust disease, poses a serious threat to the New Zealand Myrtaceae. Since the 2017 detection of *Austropuccinia psidii* in Aotearoa / New Zealand, the rust has spread rapidly, resulting in the decline and death of a range of indigenous Myrtaceae, most notably the two species of the endemic genus *Lophomyrtus*, ramarama (*L. bullata*) and rōhutu (*L. obcordata*). While the threat *Austropuccinia psidii* poses to *Lophomyrtus* is now widely recognised, the indirect impact the rust has on the associated biota is poorly understood. Very little has been documented about the biota found in association with *Lophomyrtus*. To rectify this, we undertook a survey of the specimens held in three of the key Aotearoa / New Zealand herbaria that had been collected from *Lophomyrtus*. This was supplemented by field work in eight sites in western Te Ika a Maui / North Island, and north-western Te Wai Pounamu / South Island of Aotearoa / New Zealand. Although the herbarium searches located few specimens, and field work was limited to a few sample points within the range of *Lophomyrtus*, we found 221 taxa associated with *Lophomyrtus*, 176 taxa on ramarama, 81 on rōhutu and one on the naturally occurring hybrid between these two species *Lophomyrtus xralphii*. Of the 176 taxa found on ramarama, 59 are bryophytes (one hornwort, 33 liverworts and 25 mosses), five pteridophytes, 16 spermatophytes and 96 are lichenised mycobiota. Rōhutu supported 81 taxa: comprising one cyanobacterium, one alga, twenty-nine bryophytes (17 liverworts and 12 mosses), four pteridophytes, two spermatophytes and 44 lichenised mycobiota. Wild populations of *Lophomyrtus xralphii* were not investigated, and herbarium searches only disclosed one plant, the mistletoe *Korthalsella lindsayi*, associated with it. Several lichens and liverworts collected from *Lophomyrtus* represent potentially new species, and *Lepra erythrella* is a new addition to the lichenised mycobiota of Aotearoa / New Zealand. None of the putative new species are endemic to *Lophomyrtus*.

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Unitec, Te Pūkenga, Private Bag 92025
Victoria Street West, Auckland 1010
Aotearoa New Zealand



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