

***PYRROSIA ELEAGNIFOLIA* (LEATHERLEAF FERN) AS A PLANTED EPIPHYTE IN MATAWAI PARK, RANGIORA – A ‘POTTED HISTORY’**

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Introduction

Epiphytes are typically scarce in young woody vegetation as few appropriate niches are present for their establishment. This is especially so in drier climates such as eastern lowland Canterbury where desiccation is a major issue. As young woody vegetation matures, conditions for epiphyte establishment slowly develop. On tree hosts, lichens generally are able to volunteer on younger hosts than are epiphytic ferns and seed producing plants. Matawai Park in Rangiora now has a small number of epiphytic *Pyrrrosia eleagnifolia* ferns growing well. Their brief history is explained below.

Description

Matawai Park is a 4.8 hectare Native Plants Park in Rangiora township administered by the Waimakariri District Council. Planting native woody vegetation from scratch began here in the early 1970s, and around 2007, the park’s advisory group considered trying to establish some epiphytes as part of the enrichment planting practice. One of the characteristics of Matawai Park at the time, was plantings of native trees about 30 years old where limited niches for epiphytes were just beginning to develop.

The most favourable sites in the park were judged to be on *Plagianthus regius* trees. Some of these had branch systems that had created sufficient nooks and crannies promising for epiphyte introduction, and fruticose and thallose lichens had begun to grow on them. Their bark also has a suitable texture for creeping epiphytes to take hold. At this time, some plants of the native fern, *Pyrrrosia eleagnifolia*, became available, so that seemed a good time to start.

Like other epiphytes, these ferns need light, moisture, nutrients and space to anchor and grow. *Pyrrrosia* is a member of the fern family Polypodiaceae, which has both sterile and fertile fronds and produces spores for sexual reproduction. When I first met this plant, it was known as *Pyrrrosia* (flame coloured scales) *serpens* (creeping) until that epithet was shown to be invalid. The name *P. eleagnifolia* was then chosen. (Leaves like *Elaeagnus*, the Russian or Persian “olive”.)

Pyrrrosia plants have a number of adaptations that make them successful epiphytes. They are able to absorb water well when it is available, their fleshy fronds retain water when they have absorbed it, and they also have a range of hairs that help reduce moisture loss. They grow by means of hairy, creeping rhizomes that are able to cling to mature bark as they grow. New fronds grow

from these rhizomes. These features make them well suited to dry Canterbury conditions.

The plants were sourced from below a dry, sunny rock face near Waimakariri Gorge where they were lying detached and shrivelled on the ground. These specimens had thatched rhizomes in a little organic material, which, when soaked, held moisture reasonably well.

For “planting”, a little damp leaf mould was placed in the branch crook and the plant was pressed into position. No tying was attempted at the seven sites chosen. Early on, birds investigating for invertebrates were occasionally a problem; some plants were dislodged and either fell to the ground or became detached from the best survival site on the host. At times in a very dry summer, plants were watered a little, but the planting policy at Matawai Park requires that plants should be chosen that can live without any long-term watering.



“Planting” took place in the early spring. It took 2–3 years for new rhizome growth to “grip” the bark well enough to anchor them against wind and ensure stability. Of the seven *Pyrrhosia* planted, four have now become well established. As can be seen (Fig. 1), plants have both sterile and fertile fronds, so hopefully someday spores will germinate to create new plants. It has been an interesting experiment that helps lend Matawai Park a slightly more natural look and adds to the diversity. As the plants grow, organic material slowly builds up around rhizomes. In one site, this has allowed a cabbage tree (*Cordyline australis*) to germinate and grow to about 30 cm high at present, and it will be interesting to see how it grows (Fig. 2). The *Pyrrhosia* are now about ten years old. They shrivel a little in dry summers, but are giving every indication that they will continue to survive and grow.

Figure 1 A “planted” *Pyrrhosia eleagnifolia* with sterile and fertile fronds.



Figure 2 A “planted” *Pyrrhosia eleagnifolia* with a naturally established *Cordyline australis*.

References

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