

The Fading of Fuchsia

LAURA A. SESSIONS wonders if the fate of tree fuchsia is an early-warning signal.

Native tree fuchsia, once common throughout New Zealand, is becoming increasingly rare in many areas. Scientists trying to figure out why it is disappearing have recently been led to the startling realisation that its decline may signal a similar decrease in numbers of other native plants. Like a canary in a coal mine, tree fuchsia may warn us of where the dangers are the greatest for these other species.

New Zealand tree fuchsia, or kotukutuku *Fuchsia excorticata*, is the most common of New Zealand's three fuchsia species and one of our few deciduous native trees. Of the 100 fuchsia species worldwide (all are confined to the

This flower rises direct from the typical peeling bark of a mature fuchsia. Below, fruit form from fertile flowers.



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Americas except the New Zealand species and one in Tahiti), kotukutuku is the largest, occasionally growing up to 12 metres high.

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In 1910, Cockayne noted that 'There is hardly a forest in New Zealand where the native fuchsia, the kotukutuku of the Maoris, may not be seen.' Now, almost a century later, tree fuchsia is becoming increasingly rare in many areas, though it still has a wide geographical distribution from North Cape in the subtropics to Auckland Island in the subantarctic.

The most obvious threat to tree fuchsia comes from introduced possums, which devour its tender leaves. A study in South Westland in the 1990s found that the amount of damage to fuchsia depends directly on the number of possums at a site, so fuchsia suffers the most 'die back' in areas with high possum densities. Similarly, the longer possums occupy an area, the less likely large tree fuchsia and young seedlings will survive. On the other hand, once possums are controlled, fuchsia can recover, suggesting that pest control is an effective — if temporary — solution to its decline.

Possums threaten many of our native plant species but, as a highly preferred possum food, fuchsia can be especially sensitive to possum damage in some areas. At these sites, fuchsia can serve as an early indicator of how severe overall



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How good is pollination in your area?

With a little knowledge of how fuchsia pollination works, you can find out how well pollination is working in your area. Fuchsia pollination is easy to study because flowers have bright yellow stigmas (for receiving the pollen) and bright blue pollen (you may have noticed it before on the head of a tui or bellbird). You can examine the stigma to see how many blue pollen grains are glued to its sticky top. The more pollen grains on the stigma, the more likely the flower is to produce a fruit, and the more seeds it will produce within that fruit — up to 500 of them. After looking at a number of flowers from different plants, you can get a feel for the success of pollination by counting the percentage of stigmas with lots of pollen. If you rarely see pollen on the stigmas, the plants may be in trouble.



Hermaphrodite flowers (right) are generally larger than females, and the anthers in female flowers are shrivelled into short stumps (left). Hermaphrodite flowers with close anthers and stigmas usually have more pollen on their stigmas, because they can receive pollen from their own anthers as well as from pollinators. This makes it easier for them to produce more seeds. Hermaphrodite flowers with widely separated anthers and stigma rely on a pollinator to bring pollen from another flower, just like female flowers do.

