



Title: 'Pōhutukawa perfection'

Description: Pōhutukawa (*Metrosideros excelsa*), Waikawa

Photographer's name: Noelle Bennett

Where and when: Waikawa, Marlborough. December 2019.

Sustainability: Pōhutukawa - sometimes known as the 'New Zealand Christmas Tree' - is an iconic tree in Aotearoa.

Endemic to New Zealand, the pōhutukawa grows to about 20 metres in height with a canopy spread ranging between 10 and 50 metres. It is a coastal evergreen tree in the myrtle family that produces a brilliant display of red flowers, each consisting of a mass of stamens.

To the Māori, pōhutukawa is a sacred tree, for it is from the ancient trees on the cliffs at Te Reinga that the spirits of the dead leave this land. Legend tells us that the red of the flowers comes from the blood of the mythical hero Tawhaki, who fell to his death from the sky.

Although the bright red blooms are used for decorations during Christmas season, there is some variation between individual trees in the timing of flowering. They also vary in shade and brightness of the flowers. For example, many of the trees growing around the Rotorua Lakes produce pink-shaded flowers, and the yellow-flowered cultivar 'Aurea' is descended from a pair of trees discovered in 1940 on Mōtītī Island in the Bay of Plenty. Variation between isolated populations like this is often ascribed to 'genetic drift', a type of chance divergence that may have little to do with selection or adaptation. That is one of the big challenges for conservation biologists – when does some local variation become sufficiently important to mount a conservation intervention, and when does one just enjoy the variation and lump the local variant in with all the others in the same species.

In terms of longevity, a pōhutukawa tree with an estimated age of 180 years known as 'Te Hā,' is fully established in an Auckland City park and is reputed to be the largest urban specimen in the country. Trees in towns become very important features of urban dwellers sense of place and connection with nature. It happens that Te Hā is growing near where a national memorial is proposed for the people who lost their lives in the Erebus disaster and the proposal has caused considerable public debate. It's a testament to our fondness for trees and pōhutukawa, that opposition rises to that location for remembering something as tragic and burned into our national psychic as the Erebus plane crash.

All New Zealand *Metrosideros* trees (pōhutukawa, northern rātā, southern rātā) are threatened by an invasive myrtle rust fungus. We tend to think of invasive mammalian predators as the main conservation threats, but high vigilance and border controls make it most unlikely that more such species will gain entry to New Zealand. Diseases like myrtle rust, insects and plant pests are much harder to keep out and are likely to be the longer-term threats from 'New Organisms' in future. However, one introduced mammal, the brushtail possum is already here and is threatening pōhutukawa in some places. In spite of its ability to survive perched on rocky, precarious cliffs, or even to colonise the larval plains on Rangitoto, the pōhutukawa is hugely at risk from the possum which browses on its leaves, stripping the tree of them which in turn can seriously damage or even kill them. Often where that browsing occurs within sites of unrestricted stock and vehicle access, pōhutukawa forest is in danger of becoming locally extinct. Indeed its conservation status is listed as threatened - nationally vulnerable. Thanks to the national coordination of Project Crimson, a non-profit organisation set up to protect, enhance and establish pōhutukawa forest, it does remain relatively common over large parts of its range.

Photographer's notes: The flowers of the pōhutukawa are fascinating to try to photograph. Unlike 'conventional' flowers, these are essentially just one mass of stamens, so determining your focal point is challenging and different for each photographer. Also its challenging to control exposure to capture the red colour of the flower and sunshine. But the challenges are oh so worth it in the end.

Photo specs: This image is a composite but is produced from one single image which has been used three times with differing effects applied to each iteration. This ensures that the subject is sharp but that the background doesn't dominate by being too bright or too sharp. Technical specs: The image was taken using a Panasonic DC-G9 camera and a Panasonic Leica DG Macro-Elmarit 45mm f/2.8 macro lens. Exposure details - 1/60 sec at f8 with an ISO of 400 and a focal length of 45mm (90mm full frame equivalent).

Digital specs: 3308 x 3308 pixels (10.94MP) @ 300dpi

Key words: Pōhutukawa, *Metrosideros*, *Metrosideros excelsa*, myrtle, myrtle rust fungus, disease, biosecurity, Project Crimson, possum, waikawa, Noelle Bennett, Ecosystems Photography, sustainability.

Price: \$150 (incl. GST) for use of the digital image. Visit www.ecosystemsp photography/sales for details & to order, or to get a quote if you would like a high-quality print.

Donation: The price includes a \$100 donation to a sustainability organisation or project of your choice, or otherwise to *Project Crimson* <https://projectcrimson.org.nz/>.

We recommend that the donation goes to *Project Crimson* because of collaborative work with organisations, schools, iwi, communities and individuals throughout New Zealand for restoration and environmental education. They administer Trees That Count, an important initiative for planting native trees to combat climate change. They also advocate for their 'hero species', pōhutukawa and rātā featured in this photograph.

Image ref: NB#043 (please use this reference in all orders and correspondence).

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21 December 2021