The origin of *Metrosideros* ‘Spring Fire’?

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In a recent issue of this journal, Dawson et al. (2010, pp. 18–19) discussed the selection *Metrosideros collina* ‘Spring Fire’ (Fig. 1), also known as *M.* ‘Thomasii’ and other variations of these names[2]. They commented on the likely reimportation of this selection into New Zealand and the correct species name to which the cultivar belongs. However, both Dawson et al. (2010) and (twenty years before) Edwards (1990) concluded that the name and origins of this cultivar had become very confused – probably the most uncertain of any *Metrosideros* selection. This article provides further information on this enigmatic cultivar, discusses plantings of the parent species, *M. collina*, at the Waitangi Treaty Grounds, New Zealand, and compares this material with *Metrosideros* in Rarotonga.

Fig. 1 *Metrosideros collina* ‘Spring Fire’, also known as *M.* ‘Thomasii’. Photo: Lyndale Nurseries.

In New Zealand, there are old plantings of *M. collina* thriving in the Waitangi Treaty Grounds that overlook the Bay of Islands. There are four of these trees (Fig. 2A–C) planted in a line at the start of the path from the Hobson Memorial to the Treaty House. There is also a double row (Fig. 3A–D) planted alongside the Te Whare Runanga (Māori Meeting House), on the Treaty House (the original British Residency) side (Graeme Platt, Sharon Evans and Delwyn Walker, pers. comm.).

Fig. 2 *Metrosideros collina* planted at the entrance to the path leading to the Treaty House looking out from Hobson Memorial. **A**, four mature trees, arrowed. **B**, tree in flower. **C**, close-up of tree in flower. Photos: Delwyn Walker.

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[2] For example, the name “*Metrosideros thomsonii* Hort.” appears on the herbarium voucher notes for AK 251903 and AK 319962.

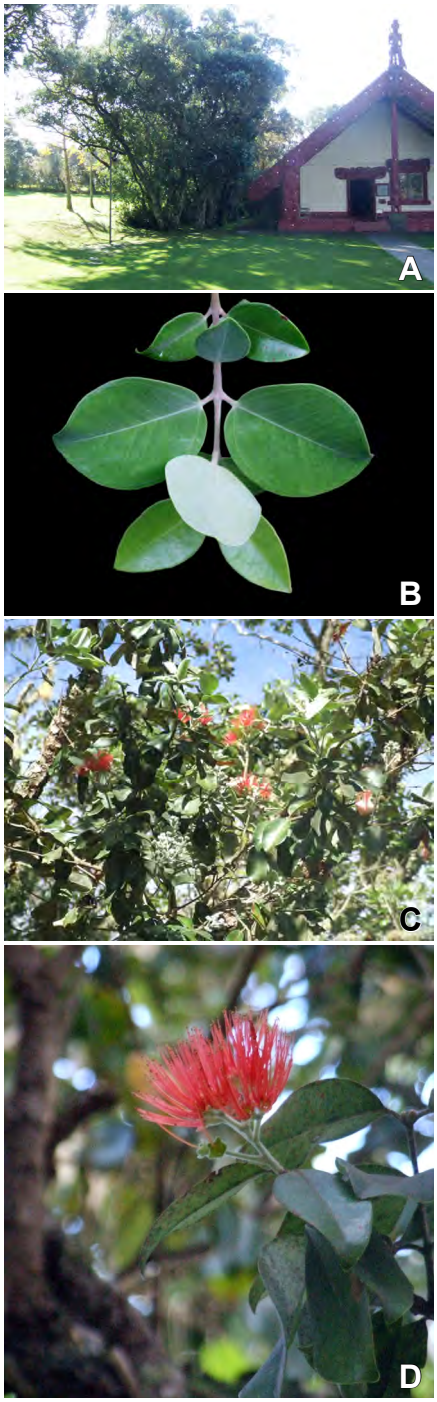

Fig. 3 *Metrosideros collina* growing alongside the Te Whare Runanga on the Waitangi Treaty Grounds. **A**, mature double row of trees. **B**, leaves. **C**, tree in flower. **D**, flowers. Photos: Delwyn Walker.

The trees alongside the Meeting House are c. 15 m tall and fully mature. They must have been planted soon after 1945, as historic photos of that time clearly show the Meeting House without these plantings (Fig. 4A–B).

These plantings are recognised as different to New Zealand pōhutukawa (*M. excelsa*; which also grows on the Waitangi Treaty Grounds, such as along the foreshore), and they flower earlier and more sporadically through the year. They were (and often still are) generally assumed to be Kermadec Island pōhutukawa (*M. kermadecensis*) but this is a misidentification. For example, an Auckland War Memorial Museum Herbarium specimen of *M. collina* (AK 211950), collected from the Treaty Grounds by I.L. Barton on 6 Sept 1960, was originally misidentified as *M. kermadecensis*. However, the plants in question are clearly *M. collina*.

Fig. 4 Historic photographs showing the Te Whare Runanga (Meeting House) lacking established plantings of *Metrosideros collina.* **A**, photo taken in 1940 to commemorate the centennial of the signing of the Treaty of Waitangi. There are young pōhutukawa (*M. excelsa*) plants in the foreground; a tree was planted in 1934 by Lord Bledisloe and two in 1935 – one by Lord Gloucester and the other for the Silver Jubilee Reign of King George V. Photo courtesy *New Zealand Herald*. **B**, photo taken in 1945 by J.T. Salmon, provided by the Waitangi National Trust.

When plantsman Graeme Platt (pers. comm.) first saw these trees, he immediately knew they were not a New Zealand species. Graeme propagated some plants from cuttings off the old trees at the Waitangi Treaty Grounds and grew them on his property in Albany, Auckland. In the 1990s, Graeme showed botanist Peter de Lange the plants he had growing. Peter collected a herbarium specimen (AK 223993) and this material was confirmed as *M. collina*.

Metrosideros collina is a variable species native to some mountainous islands of the south Pacific. Peter de Lange (pers. comm.) considers that *M. collina* 'Spring Fire' / *M.* 'Thomasii' is derived from high altitude material in Rarotonga as, in 2000 and 2010, he collected wild specimens that match it.

Peter de Lange saw and collected two "forms" from Rarotonga. Material matching *M. collina* 'Spring Fire' is of the tomentose (hairy) race, which, as currently circumscribed, best matches *M. collina* var. *villosa*. Plants of this race (AK 251903[3], AK 319839, AK 319962) are common within the higher tracts of cloud forest on Rarotonga (above 480 m asl at Mangatea, Te Atuakura, Te Kou and Te Manga; Fig. 5). According to Peter, it is distinct from the smaller-leaved race (AK 319821, AK 319945, AK 319957; Fig. 6), which is more widespread at lower altitudes, by its widely branching, spreading growth habit, larger, broadly ovate, often pendulous leaves, and more densely tomentose emergent growth. Flowers are typically pale pink to coral pink (or light crimson) when fresh.

Other botanists have collected in Rarotonga. In 1899, Thomas Cheeseman undertook a three month plant collecting expedition to the Cook Islands (United Press Association, 1899) and wrote the first flora treatment for Rarotonga (Cheeseman, 1903). During his time there, Cheeseman collected live plants (Bill Sykes, pers. comm.) and herbarium specimens of various genera. Included in his collections are several herbarium specimens of *Metrosideros collina* (AK 74341–74349). Like de Lange, Cheeseman (1903) also observed two "forms" of *Metrosideros*:

> "Abundant on all the hills, ascending to the tops of the highest peaks, alt. 2200 ft [671 m]. There are two forms: one, which is much the more plentiful, has the young shoots and branches of the inflorescence silky or tomentose; the other has broader leaves and is nearly glabrous, the bark of the young branches being usually bright red."

[3] Herbarium specimen AK 251903 is labelled *Metrosideros collina* var. *collina*, rather than var. *villosa*.

Fig. 5 Higher altitude race of *Metrosideros collina*, photographed at Te Kou crater, Rarotonga. Photo: Peter de Lange.

Fig. 6 Lower altitude race of *Metrosideros collina*, photographed on Te Manga track, Rarotonga. Photo: Peter de Lange.

In 1969, another New Zealand botanist, Prof W.R. Philipson, spent considerable time on Rarotonga, during the Cook Bicentenary Expedition to the Tongan and Cook Island Groups (Beaglehole, 1971). The history of cultivation of *Metrosideros collina* in New Zealand predates Philipson's trip, as evidenced by Barton's herbarium collection in 1960 (AK 211950).

Throughout the south Pacific, there are three currently accepted varieties of *M. collina* (var. *collina*, var. *fruticosa* and var. *villosa*; Smith, 1973). Albert Smith resolved many of the botanical names (nomenclatural) issues and some of the taxonomic problems. However, he recognised that the *M. collina* complex is taxonomically difficult and his treatment is in need of re-examination. Smith's (1973) work seemed heavily reliant on Fijian specimens and did not examine herbarium material from Rarotonga. There is probably other variation, not accounted for by the currently circumscribed varieties, across the range of this complex in the Pacific. Recognition of any new taxa (species, subspecies, varieties etc.) depends on resolving wider patterns of variation and the taxonomic level at which you demarcate them.

Modern molecular phylogenetic techniques have attempted to resolve the dispersal of *Metrosideros* in the Pacific and shows that *M. collina* does not form a natural taxonomic group (i.e., is not monophyletic) across its range (Wright et al., 2000). Interestingly, some Pacific Island species, including *M. collina*, have identical or very similar DNA sequences to *M. excelsa*, leading Wright et al. (2000) to suggest that they arose from New Zealand pōhutukawa through long-distance dispersal into the Pacific.

So who first marketed plant material under the name *M.* 'Thomasii' and where and when did they do this? Parts of this puzzle remain uncertain.

New Zealand does appear to be the original source of the cultivated material. Australian plantsman Clive Larkman gave me some notes that he wrote in 2001 that stated: "It seems that the plant [*M.* 'Thomasii'] originated from three large trees grown in the northern part of the North Island [of New Zealand]". This could well refer to the Waitangi Treaty grounds entrance plantings – three plants are on one side of the entrance and a fourth is on the other (Fig. 2A).

Who was *M.* 'Thomasii' named after? Clive Larkman and Australian botanist Peter Wilson (pers. comm.) both heard that the name "Thomasii" came from an Australian plantsman called Thomas, possibly (according to Clive) an employee at Swane's Nurseries. However, Swane's Nurseries told me that *M.* 'Thomasii' was selected by a nursery in Auckland owned by the late Roly Barry and named by him (Noel Deakin and Ben Swane, pers. comm.). Before he retired in about 1980, Roly was the proprietor of South Taranaki Nurseries, situated at Fairfield Road, Hawera – not Auckland (Jim Rumbal, pers. comm.). *M.* 'Thomasii' was more likely to have been introduced by an Auckland or Northland-based nurseryman as plants would be less successful when raised in cooler climates.

Peter de Lange (pers. comm.) has an alternative suggestion for the naming of *M.* 'Thomasii'. He suspects that it commemorates botanist Thomas Frederic Cheeseman (1846–1923) and raises the idea that Cheeseman could have brought this selection back with him to New Zealand sometime after his Rarotongan visit in 1899.

Peter de Lange's comparison of herbarium specimens and live plants from New Zealand and the Pacific islands provides good support that this selection was made in New Zealand from cultivated material originally collected wild from Rarotonga.

Metrosideros collina has been in New Zealand for a long time, but I am not certain if it dates as far back as Cheeseman's time. However, Peter may be right and it is true that the lag between some of the early plant introductions and their eventual horticultural uptake and marketing was much longer in the early days than it is now.

The 1970s date of commercial introduction provided by Noel Deakin and Ben Swane (Dawson et al., 2010, p. 19) is imprecise. Early nursery catalogues could be searched to more firmly establish when and where the name *M.* 'Thomasii' first appeared in the New Zealand horticultural record. The Plant & Food Research library at Mount Albert, Auckland has an excellent historic nursery catalogue collection but locating such a record, if it exists at all, would be difficult.

Historic plantings at the Waitangi Treaty Grounds

The Waitangi Treaty House gardens are a New Zealand Gardens Trust "Garden of National Significance" with a long horticultural history that predates the famous 1840 signing of the Treaty of Waitangi on that site. The Waitangi Treaty House was the original British Residency of James Busby, New Zealand's first jurist (involved in drafting the Treaty) and he was regarded as father of the Australian and New Zealand wine industry.

Two camellias planted on the grounds by James Busby and his wife Agnes in 1833 survive to this day – they are huge multi-trunked trees and perhaps the oldest *Camellia* in the country.

A Norfolk Island pine (*Araucaria heterophylla*) was also planted on the Waitangi Treaty Grounds by Agnes Busby in 1836, and represents the oldest introduction of this species in New Zealand. This tree is documented to have been one of a box of seedlings collected from Norfolk Island and brought to New Zealand in 1836 by John Edgerley (gardener and botanist to Lieutenant Thomas McDonnell, R.N.). Today, this tree is more than 40 m tall and in good health (Notable Trees of New Zealand record NR/0734). These examples show that there are some very early introductions still growing at the Treaty Grounds.

There is an account of "400 cuttings of *Hibiscus*, tiare Mo'orea [*Tabernaemontana coronaria*], tiare taina [*Gardenia taitensis*], *Croton* and frangipani [*Plumeria obtusa* or *P. rubra*], plants collected and rooted by School Children under the supervision of the Director of Agriculture, Rarotonga. Cook Islands Dept." (Waitangi National Trust Board Minutes, 29 Sept 1936). This Rarotongan material was propagated in 1936 for the Waitangi Treaty Grounds.

Metrosideros collina was not named in this account, but seed or cuttings could have been collected from Rarotonga and propagated at about this time, before being planted out in the Treaty Grounds during the 1940s.

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References

Beaglehole, J.C. (1971). Cook in the Cook Islands and Tonga. In: Cook Bicentenary Expedition in the Southwest Pacific 1969, Wellington, pp. 15–20.

Cheeseman, T.F. (1903). VI. The flora of Rarotonga, the chief Island of the Cook group. *Transactions of the Linnean Society of London. 2nd Series: Botany, Vol. 6, Issue 6*: 261–313. (Available at http://onlinelibrary.wiley.com/doi/10.1111/j.1095-8339.1903.tb00277.x/pdf).

Dawson, M.I.; Hobbs, J.; Platt, G.; Rumbal, J. (2010). *Metrosideros* in cultivation: Rātā and other species. The second of a two-part series. *New Zealand Garden Journal 13(2)*: 10–23. (Available at www.rnzih.org.nz/RNZIH_Journal/Pages_10-23_from_2010_Vol13_No2.pdf).

Edwards, B. (1990). New *Metrosideros* keeps its past to itself. *Commercial Horticulture*, August: 34–35.

Smith, A.C. (1973). Studies of Pacific Island plants. XXVI. *Metrosideros collina* (Myrtaceae) and its relatives in the Southern Pacific. *American Journal of Botany 60(5)*: 479–490.

United Press Association (1899). A scientific mission. Otago Daily Times, Issue 11491, 2 August 1899, p. 5. (Available at http://paperspast.natlib.govt.nz).

Wright, S.D.; Yong, C.G.; Dawson, J.W.; Whittaker, D.J.; Gardner, R.C. (2000). Riding the Ice Age El Niño? Pacific biogeography and evolution of *Metrosideros* subg. *Metrosideros* (Myrtaceae) inferred from nuclear ribosomal DNA. *Proceedings of the National Academy of Sciences, USA 97*: 4118–4123.

Websites
(accessed December 2011)

Cook Islands Biodiversity: http://cookislands.bishopmuseum.org.

New Zealand Gardens Trust. Waitangi Treaty House Gardens: www.gardens.org.nz/advancedsearch/?id=18.

Notable Trees of New Zealand register. Record NR/0734: http://register.notabletrees.org.nz.

Waitangi Treaty Grounds: www.waitangi.net.nz.