

Metrosideros in cultivation: Pōhutukawa

The first of a two-part series

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Metrosideros is the botanical name for a group of trees, shrubs and woody climbers that include New Zealand's iconic and widely grown pōhutukawa and rātā. The name *Metrosideros* is derived from the Greek words *metra*, meaning 'heartwood', and *sideron*, 'iron', referring to the dense wood typical of the genus.

Metrosideros belongs to the myrtle family (Myrtaceae), comprising some 5500 species and 130 genera including *Leptospermum* (the tea-trees with about 87 species) and the well-known *Eucalyptus* (with about 680 species). *Metrosideros* contains some 53 species distributed across New Zealand, New Caledonia, Hawai'i, Papua New Guinea, elsewhere across small islands of the Pacific, and one outlier species in South Africa (Box 1).

New Zealand has 12 native species and all are endemic (only found naturally in this country) (Allan, 1961; Dawson, 1985). Some of the best known and tallest growing species include *M. excelsa* (pōhutukawa or New Zealand Christmas tree), *M. robusta* (northern rātā) and *M. umbellata* (southern rātā). New Zealand is also the only country to have lianoid (climbing) species.

When in flower, *M. excelsa* is probably New Zealand's most spectacular and colourful native tree. Meaning 'splashed by the sea', pōhutukawa is an important tree to Māori as it is said that spirits depart to the next world via the sacred tree growing at Cape Reinga on the northern tip of Aotearoa – New Zealand. Bark from pōhutukawa trees was used by Māori for a wide range of medicinal uses, and the sweet nectar was collected and drunk. This nectar also makes quality bee honey.

While pōhutukawa is adapted to surviving the salt-laden and wind-swept conditions of the sea coast, some forest-dwelling species of *Metrosideros* grow on host plants as epiphytes. Northern rātā (*M. robusta*) and other tree rātā can begin life either on the ground or in the branches of another tree, in which case roots are sent to the ground and envelop the host tree. This process can take 200 years or more to occur.

Southern rātā (*M. umbellata*), as its common name suggests, has the most southerly distribution of all *Metrosideros* species and is consequently the most cold hardy. It occurs naturally from latitude 36°S to as far south as the Auckland Islands at latitude 50°31'S, and can grow at relatively high altitudes (to about 1000 m above sea level).

Climbing species such as *M. carminea*, *M. diffusa* and *M. perforata* climb by means of special attaching roots like ivy. They will grow up a support to reach higher light levels, then produce shrubby-type growth and begin to flower. These plants usually occur in lowland forest and scrub areas.

There is great natural variation in plant form and flower colour among species (particularly within *M. excelsa*) and some species hybridise. This natural variation has allowed several forms to have been selected and given cultivar names. Although there are some outstanding cultivars, there has been little deliberate breeding work in *Metrosideros*, and the great majority of selections have been made from the wild or from plants already in cultivation.

Many of the recent cultivars were selected from trees not yet fully mature, so their ultimate dimensions may not be known. For the species, sizes stated in this article are based upon botanical descriptions of wild plants (mainly from Allan, 1961). Cultivated specimens will take decades to reach these dimensions.

This article discusses *Metrosideros* species in cultivation and comprehensively documents the origins of the hybrids and cultivars derived from them. Part One covers the interspecific hybrids (hybrids between species) and cultivars of *M. excelsa* (pōhutukawa) and its close relative *M. kermadecensis* (the Kermadec pōhutukawa). Part Two will document the remaining species (the rātā trees and vines) and their cultivars.

Cultivars and hybrids

Cultivars of *Metrosideros* have arisen from selecting wild forms, outstanding trees already in cultivation that are of unknown original provenance, or chance mutations such as atypical flower colour or variegated foliage. Once selected, these forms are usually maintained through vegetative propagation such as cuttings.

Flower colours in *M. excelsa* are the most variable of the New Zealand species. In addition to the many shades of crimson and scarlet, there are pink-, orange-, apricot-, yellow-, and off-white flowered plants (Edwards, 1991; Hobbs, 1992; Simpson, 2005). The colourful parts of *Metrosideros* flowers are not petals but actually the stamens.

Yellow flower colour instead of the usual red has arisen several times. For example, yellow-flowered forms of *M. excelsa*, *M. fulgens* and *M. umbellata* have been discovered

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in the wild and introduced into cultivation. Subsequent seedling selection of *M. excelsa* 'Aurea' and a yellow-flowered form of *M. umbellata* have resulted in the derived cultivars *M. excelsa* 'Moon Maiden' and *M. umbellata* 'Gold Beacon', respectively, with more vivid yellow flowers.

Variiegated forms, with green leaves and grey or yellow margins (and reverse variegations where the green is on the outside leaf margin) have also arisen independently several times. Examples of variegated cultivars include *M. carminea* 'Carousel', *M. diffusa* 'Crystal Showers', *M. excelsa* 'Variegata', *M. kermadecensis* 'Variegata', *M. perforata* 'Wee Willie Winkie', and *M. umbellata* 'Harlequin'. Some of these cultivars have undergone further selection, whereby branch sports have been selected and maintained through vegetative propagation to accentuate the yellow leaf colour. Instead of the usual variegation, the yellow leaf colour is present in large blotches, splashes or speckles, or on the entire young leaves of cultivars such as *M. excelsa* 'Sunglow', *M. umbellata* 'Gold Nugget' and *M. umbellata* 'Moonlight'.

Many *Metrosideros* cultivars are relatively recent and their origins are reasonably well documented – by Hugh Redgrove (1983); Bob Edwards (1987a, 1987b, 1989, 1990a, 1990b, 1990c, 1991, 2000); Lawrie Metcalf (1987, 2000); Colin Hutchinson (1988); Jack Hobbs (1992); in an Auckland Botanic Gardens advisory leaflet published by the Auckland Regional Council (ARC, 1999); and elsewhere. *M. excelsa* cultivar origins are particularly well documented whereas *M. umbellata* cultivars are less well recorded.

A few cultivars are mentioned in Philip Simpson's (2005) excellent book on pōhutukawa and rātā, although that book focuses instead on cultural aspects and the natural history of these plants. Bergin and Hosking (2006) do not cover cultivars in detail either, but provide useful information on the ecology, establishment, growth and management of pōhutukawa.

Duncan & Davies nursery were pioneers who introduced many new selections of *Metrosideros* into

cultivation. They were most active from the 1940s to the early 1990s, when they introduced about 14 selections. The year of commercial release provided in this article for each cultivar (where known) is based on the first Duncan & Davies nursery catalogue to list that cultivar. However, several were available in small quantities as trial plants and cash sales that may pre-date the main release dates. Some of the Duncan & Davies selections of *Metrosideros* were originally provided by the late Felix Jury (Mark Jury, pers. comm.).

Early in the history of the nursery, Duncan & Davies distributed numerous seed-raised pōhutukawa for coastal planting. It is possible that some of these early plantings, growing around the Coromandel Peninsula and elsewhere, were later selected, propagated and given cultivar names by Auckland plantsman Graeme Platt (Terry Hatch, pers. comm.).

Graeme Platt has been a keen observer of the natural variation of pōhutukawa and has introduced more than 18 selected forms. Several are outstanding cultivars and the result of examining many thousands of trees in his quest for perfect specimens. Most of his work was undertaken in the mid-1980s but continues up to the present (e.g., Edwards, 1989, 1991, 2000; Hobbs, 1992; Simpson, 2005; Platt, 2008).

Bob Edwards (1991) and Jack Hobbs's (1992) articles provide good summaries of the features that Graeme Platt looks for, including a clean and uncluttered tree form (without twiggy growth), long and glossy leaves, large bright flowers with long stamens and prominent yellow pollen, abundant and reliable flowering, well-displayed flowers that are not concealed by vegetative growth, and flowering inside the canopy of the tree rather than just on the extremities of the branches.

Deane Keir of Westland has grown many thousands of *Metrosideros* plants since the early 1990s. These plants are used by Solid Energy International for mine rehabilitation projects and by Project Crimson for several of their planting projects on the West Coast of the South Island. During this time, many different

forms and selections have been grown and evaluated for commercial potential and general interest. Deane Keir (pers. comm.) has released several selections of *M. robusta* and *M. umbellata*.

Les Cleveland of Dunedin has a long-standing interest in *Metrosideros* breeding. From the 1960s up to the current day, he has been making numerous selections and deliberate interspecific crosses between *M. excelsa*, *M. robusta* and *M. umbellata*. He has also successfully crossed the Vanuatu species *M. collina* (♀) with the New Zealand *M. umbellata* (♂) and considers the dozen or more hybrids to be relatively cold hardy. Les raises his plants in Otago and often uses *M. umbellata* as a parent for increased cold-tolerance. Within *M. umbellata*, he has also selected for cold-hardiness, form, foliage, flower colour and reliable heavy flowering (Les Cleveland, pers. comm.). Several of his selections are wholesaled through Wallis's Nurseries, Mosgiel (Clive Wallis, pers. comm.).

Artificial hybrids

Metrosideros 'Cleveland Red' and *M. 'Rustic Beauty'* are the only *Metrosideros* cultivars currently sold that are products of artificial hybridisation. Both were raised by Les Cleveland (pers. comm.).

Metrosideros 'Cleveland Red' is a deliberate interspecific hybrid between *M. umbellata* (♀) and *M. excelsa* (♂), raised in the mid- to late 1990s. *M. 'Rustic Beauty'* is another deliberate *M. umbellata* × *excelsa* hybrid, raised some years earlier (perhaps about 1985) by Les Cleveland. They have been sold at Wallis's Nurseries since about 1990–1995 (Clive Wallis, pers. comm.).

Natural hybrids

Metrosideros kermadecensis (the Kermadec pōhutukawa) and *M. excelsa* (pōhutukawa) are closely related and readily hybridise when grown together.

Natural hybrids between *M. excelsa* and *M. robusta* occur in areas where the two species distributions and flowering times overlap, typically just inland from the coast and towards the end of pōhutukawa flowering and near the start of northern rātā flowering. This natural hybrid (called

Metrosideros \times *sub-tomentosa*) is the most common one and Rangitoto Island is a good place to see them. Further out in the Hauraki Gulf, on Great Barrier Island, is another place to find natural hybrids; *M. sub-tomentosa* occurs there, and occasionally *M. excelsa* \times *umbellata* and *M. robusta* \times *umbellata*.

In the Far North at Te Pahi, natural hybrids involving Bartlett's rātā may possibly occur. Specimens have been collected by botanists Peter de Lange (pers. comm.) and Gillian Crowcroft and tentatively identified as *M. bartlettii* \times *excelsa* (e.g., Allan Herbarium specimen CHR 475174).

Six putative natural hybrids of New Zealand *Metrosideros* have been named and introduced into cultivation. All except *M. 'Red Haze'* were selected by Graeme Platt.

Metrosideros* \times *sub-tomentosa

'Hauparapara': a natural hybrid between *M. excelsa* and *M. robusta* that resembles *M. robusta* more than the other parent. The flowers are a somewhat dull orange-red as is typical of its northern rātā parent. This selection is a very erect tree with potential for use in amenity street planting. *M. 'Hauparapara'* was discovered by Graeme Platt in the late 1980s near Hauparapara River in the Bay of Plenty.

***M. sub-tomentosa* 'Mistral':** another natural hybrid between *M. excelsa* and *M. robusta*. It has dark green leaves and deep scarlet flowers that appear early to mid-December (Fig. 1). This selection is a vigorous, medium-sized, erect-growing tree. *M. 'Mistral'* would make an excellent street tree and is also suitable for large containers. Graeme Platt found it in kānuka/mānuka scrub on the Coromandel Peninsula, on the ranges east of Coromandel township on the road from Coromandel to Te Rerenga (Edwards, 1989; Hobbs, 1992). It did not originate on Great Barrier Island as stated in some references (e.g., Redgrove, 1983; Edwards, 1987a; Metcalf, 1987, 2000; ARC, 1999) and websites (e.g., Lyndale Nurseries online catalogue, 2010; Plant Production online catalogue, 2010; Plantman online catalogue, 2010). Discovered in the 1970s, *M. 'Mistral'* is one of the first *Metrosideros* selections to be introduced into cultivation by Graeme Platt. He found

that this selection was very wind resistant, so named it "Mistral" after the cold wind that blows in southern France.



Fig. 1 *Metrosideros* \times *sub-tomentosa* 'Mistral', a natural hybrid between pōhutukawa and northern rātā. Photo: Lyndale Nurseries.

Another selection, similar to *M. 'Mistral'*, is currently being sold incorrectly under this name. The true form of *M. 'Mistral'* has slightly wavier foliage than the wrongly named plant.

***M. sub-tomentosa* 'Rangi':**

this probable *M. excelsa* \times *robusta* hybrid was so-named as the parent plant grows near the grave of Guide Rangi (Mrs Rangitirianna Dinnan) in Whakarewarewa, Rotorua. It was propagated by Graeme Platt in the late 1980s and is not widely cultivated.

M. 'Maungapiko': a natural hybrid between *M. excelsa* and *M. umbellata* that forms an erect tree more like *M. umbellata* (Edwards, 1989; Hobbs, 1992; ARC, 1999; Metcalf, 2000). It develops into a narrow, upright tree with an open habit that tends to lose its lower leaves. *M. 'Maungapiko'* has bright crimson blooms (resembling those of a southern rātā) that appear a little later than most pōhutukawa (Fig. 2). It is more frost tolerant and resistant to psyllid attack than cultivars of pōhutukawa. *M. 'Maungapiko'* was discovered by Graeme Platt in the early 1980s growing in mānuka scrub at the junction of Maungapiko Track and the old Whangaparapara – Port Fitzroy Road on Great Barrier Island. The original tree has since been destroyed by road widening and the old forestry road is now a walking track.



Fig. 2 *Metrosideros* 'Maungapiko', a natural hybrid between pōhutukawa and southern rātā. Photo: Naturally Native NZ Plants.

M. 'Red Haze': raised in the mid-1980s at Oratia Native Plant Nursery along with a number of other seedlings that looked different from the usual *M. excelsa* in the rest of the batch. At the time David Hayes (now a landscaper in Northland) was working for Geoff Davidson (pers. comm.) and he raised them and selected one to grow on. The name "Red Haze" is a play on David Hayes surname. Geoff Davidson (pers. comm.) considers *M. 'Red Haze'* to be a hybrid between *M. excelsa* and *M. kermadecensis*. This cultivar was first marketed by Oratia Native Plant Nursery in the late 1980s to the early 1990s (Gaddum, 1997, 1999a, 1999b, 2001; Geoff Davidson, pers. comm.). An early planting growing on Geoff Davidson's property is now a large wide-spreading tree with a multi-stemmed habit. Many years ago, Auckland City Council planted some along Tamaki Drive, between The Strand bridge and Solent Street in Auckland City.

M. 'Sentinel Flame': a natural hybrid between *M. robusta* and *M. umbellata* discovered by Graeme Platt. He has grown it for many years and is now uncertain of where he collected it, either on Great Barrier Island or in North-West Nelson. In about 2007, Graeme Platt gave propagation material to Mary Duncan (pers. comm.) of Vibrant Earth nursery, Nelson, who named it *M. 'Sentinel Flame'* after its upright growing habit. Plants are available from Vibrant Earth nursery.

All of the above-mentioned hybrids are within Subgenus *Metrosideros* (Box 1). Recent DNA evidence suggests an ancient history of repeated hybridism in the evolution of New Zealand species within this subgenus (Gardner et al., 2004).

Although Allan (1961) claimed that there is some evidence that *M. colensoi* crosses with *M. diffusa*, this has not been substantiated and there are no known hybrids involving New Zealand (or New Caledonian) species of Subgenus *Mearnsia* (John Dawson, pers. comm.).

Pōhutukawa trees

Metrosideros excelsa (pōhutukawa)

Of all the species, the iconic pōhutukawa is the best known (Fig. 3). Besides its spectacular flowers around Christmas time, trees are well known for their incredibly gnarled trunks and branches that can be adorned with aerial roots. Trees can grow to 20 m tall. Leaves are dark green above, with dense white hairs below, leathery, and up to 10 cm long. Pōhutukawa grow naturally on sea cliffs, in coastal forest in areas north of Poverty Bay, on the shores of the Rotorua lakes and on the Three Kings Islands (Allan, 1961; Simpson 2005). Rangitoto Island has the largest remaining pōhutukawa forest. The trees there are no more than 150–200 years old and have rapidly colonised the volcanic lava. Mayor Island in the Bay of Plenty is also dominated by pōhutukawa forest where there are some very mature trees. Plants found on Motutaiko Island in Lake Taupo are likely to have been originally planted by Māori instead of naturally dispersing there (M. J. Johnston in Bergin and Hosking, 2006).



Fig. 3 Botanical illustration of *Metrosideros excelsa* (then as *M. tomentosa*) in Curtis's *Botanical Magazine*, London, Vol. 76 (= Ser. 3, Vol. 6): Tab. 4488, 1850. Image courtesy Missouri Botanical Garden, www.botanicus.org.

Because pōhutukawa mainly occurs in northern, coastal areas it will only tolerate light frosts (Bannister, 1990) and is unsuitable for cultivation in cool inland areas of New Zealand. There may be potential for selecting plants with some increased cold-resistance from the outlier populations growing wild at the inland lakes.

In the South Island, pōhutukawa is cultivated successfully in milder locations near the sea, such as Nelson, on the west coast in Greymouth and as far south as Jackson Bay (Simpson 2005; Lawrie Metcalf, pers. comm.), on the east coast in Marlborough and Kaikoura, on coastal Banks Peninsula at Redcliffs, Sumner (Fig. 4–6), Scarborough, Little Akaloa and Akaroa (Murray Dawson, pers. obs.; Warwick Harris, pers. comm.), and along Portobello Road around Otago Peninsula (Tom Myers, pers. comm.). There are also several *M. excelsa* trees planted on the Chatham Islands (e.g., CHR 476937) and it is cultivated as far south as Stewart Island (Ron and Elspeth Tindal, pers. comm.).

Most pōhutukawa are suited for planting in large gardens and exposed coastal conditions in milder areas. However, with the wide range of forms now available it is possible to choose one that suits a wider range of sites – be it city waterfront, large park or public place, urban street, or a smaller home garden. When young, pōhutukawa can also make suitable container plants.



Fig. 4 This pōhutukawa growing at Clifton Bay in Sumner is a Christchurch City Council heritage and notable tree. It is more than 80 years old and the largest *Metrosideros excelsa* in Christchurch. Photo: Murray Dawson.



Fig. 5 *Metrosideros excelsa* 'Aurea', a yellow-flowered variant of pōhutukawa. **A**, plant in flower. **B**, close-up of flowers. Photos: Murray Dawson.



Fig. 6 This unusual street tree growing at Sumner, Christchurch, appears to be half *Metrosideros excelsa* 'Aurea' (left) and half the usual red-flowered form (right). The most likely explanation is that the tree was a yellow-flowered graft, and buds below the graft from red-flowered rootstock also grew from an early age. Another possibility is that young red- and yellow-flowered plants were inter-planted and allowed to grow together. Least likely is that a side-branch mutation to the yellow-flowered colouration or a side-branch reversion to red flowers occurred early on in the growth of the plant. Photo: Murray Dawson.

Pōhutukawa as a weed

Metrosideros species produce vast numbers of fine seeds that are readily dispersed by the wind. Given the right germination and growing conditions, these attributes are characteristics of weedy species.

Metrosideros excelsa is a popular and widely cultivated plant in coastal Wellington where it grows well and produces numerous seedlings. The concern there is that coastal Wellington is well outside of its natural range and *M. excelsa* now grows in habitats that *M. robusta* would have occupied naturally when it was more widespread. The remnant populations of *M. robusta* may be at risk from encroaching *M. excelsa* and possible genetic contamination through inter-hybridisation (Bergin and Hosking, 2006). For these reasons it is listed as a weed on the DOC consolidated list of environmental weeds (Howell, 2008).

Overseas, pōhutukawa is cultivated in countries with milder climates and in some places it has become a weed. *M. excelsa* has escaped from cultivation in the Western Cape province of South Africa and has become a serious weed of the fynbos (a major ecosystem renowned for its diversity of native plant species) (e.g., Harris, 2002).

Similarly, *M. kermadecensis* has recently naturalised on Maui, Hawai'i, and is considered a pest species (Evenhuis and Eldredge, 2004).

The famous pōhutukawa of La Coruña and debate on the discovery of New Zealand

Metrosideros excelsa thrives in the frost- and possum-free coastal regions of Galicia in Spain. A very famous pōhutukawa is growing at La Coruña, capital of Galicia province. This tree was chosen as the city's floral emblem and is said by the locals to be 400–500 years old.

Dr Warwick Harris was in La Coruña in 2001 and caused a flurry of local media coverage, and afterwards in New Zealand, when he stated his belief that the tree

could not be more than 200 years old. He considered that it was most likely the tree came to Spain via the early plant trade through England (e.g., Landcare Research media release, 20 September 2001; Bergin and Hosking, 2006).



Winston Cowie and Juan Pinero in front of the famous pōhutukawa at La Coruña. Photo: Angus Fraser.

Nobody knows exactly how the tree got to La Coruña, but if the locals are right on its age it could only mean that the Spanish sailed to New Zealand before Captain Cook in 1769 or Abel Tasman's sighting in 1642.

Scientifically ageing the tree would settle this debate. There is a renewed initiative to get an official age for the tree (Lambly, 2009), and in September/October 2010 tree-ring scientist Dr Jonathan Palmer (pers. comm.) will travel to La Coruña to take core samples to determine its age.

History books on the first Europeans to reach New Zealand would have to be rewritten if the La Coruña pōhutukawa pre-dates Captain Cook's voyage.

Flower size and colour vary between trees and flowering time also varies considerably within the period November to January. This variability has allowed the selection of more than 30 named cultivars of *M. excelsa*, by far the greatest number for any *Metrosideros*. Those with recorded origins include the following.

***M. excelsa* 'Aurea'**: a greenish-yellow-flowered variant that originated on Motiti Island in the Bay of Plenty. It was first offered for sale in a 1947 Duncan & Davies Nursery Catalogue (no. 97). For many years Duncan & Davies produced it from seed only and all seedlings remained relatively true to type with yellow flowers (Hobbs, 1992). Green (1975) incorrectly assumed that it was grown from cuttings to maintain its flower colour. Metcalf (1987, 2000) states that all cultivated material is derived from two trees discovered on Motiti Island about 1940. Simpson (2005) states that naturally occurring yellow-flowered variants are relatively common on Motiti Island.

Other yellow-flowered pōhutukawa have been discovered in the Bay of Plenty. Adams (1967) discovered one in 1966, growing in the hills behind Oruaiti Beach near Waihou Bay. Bergin and Hosking (2006) provide a photograph of another naturally occurring yellow-flowered plant growing at Ohiwa Harbour near Whakatane.

Amenity plants of *M. excelsa* 'Aurea' are cultivated at Cornwall Park, Auckland, Cameron Street in Tauranga (Simpson, 2005), and at Sumner, Christchurch (Fig. 5A–B, 6).

***M. excelsa* 'Blockhouse Bay'**: bright red rounded (pompom) flowers and neat glossy leaves (Fig. 7; Edwards, 2000). Graeme Platt regards it as having good potential for growing in containers. It was discovered by Graeme growing in a park in Blockhouse Bay, Auckland, in the mid-1980s.



Fig. 7 *Metrosideros excelsa* 'Blockhouse Bay'. Photo: Jack Hobbs.

***M. excelsa* 'Butterscotch':**

reddish stems and reddish-gold new leaves becoming butter-yellow and finally green with age (Fig. 8). This cultivar originated as a branch sport of *M. excelsa* 'Sunglow' and was commercially released by Duncan & Davies nursery in 1993 (Hobbs, 1992).

Several years before its main release, Redgrove (1983) and Metcalf (1987) provided the same colour photograph of *M. excelsa* 'Butterscotch', incorrectly under the name *M. excelsa* 'Sunglow'. *M. excelsa* 'Butterscotch' is currently available (e.g., Gaddum, 1997, 1999a, 1999b, 2001; Lyndale Nurseries online catalogue, 2010).



Fig. 8 *Metrosideros excelsa* 'Butterscotch'. Photo: Lyndale Nurseries.

***M. excelsa* 'Centennial':** an erect-growing, reverse-variegated cultivar with distinct, erect, narrow leaves. It can be distinguished from *M. excelsa* 'Variegata' by its narrower leaves with a prominent bright yellow stripe along the central vein. It was propagated by Graeme Platt from a parent plant growing in the Auckland City Centennial planting in the Auckland Domain (Edwards, 1989; Metcalf, 2000).

***M. excelsa* 'Christmas Cheer':** produces crimson flowers in distinctively large clusters consistently about Christmas time. It was selected by plantsman Bob Bayly in Gisborne (Edwards, 1991; Hobbs, 1992). This cultivar does not seem to be widely available.

***M. excelsa* 'Dalese':** an unusually compact, low-growing selection with distinctly short internodes of 10–13 mm (Fig. 9). This is a new release for New Zealand from Lyndale Nurseries (online catalogue, 2010), who imported it from Australia and currently sell it under the incorrect species name *M. tomentosa* 'Dalese'.

The species name "tomentosa" is an old synonym for *M. excelsa*. The cultivar arose as a seedling selection raised from a seed batch by Robert Donato and Neil Perrott at Robert Donato Nurseries, NSW (*Plant Varieties Journal*, 1997, Vol. 10, No. 4). The Australian Plant Varieties journal should not have used the name *Metrosideros tomentosa* and in a later issue this was changed to (the misspelt) "*M. excelsus*" (*Plant Varieties Journal*, 1998, Vol. 11, No. 3). Because of this confusion, a formal identification would help to confirm its identity. Unfortunately, the name *M. tomentosa* 'Dalese' currently persists in Australian nurseries that sell it.



Fig. 9 *Metrosideros excelsa* 'Dalese'. Photo: Lyndale Nurseries.

Lyndale Nurseries state that it grows to 0.3 m tall, whereas some Australian nurseries state 1.5 m and the Australian Plant Varieties description (*Plant Varieties Journal*, 1997, Vol. 10, No. 4) states several metres tall. It has been granted Plant Breeders Rights (PBR) protection in Australia.

***M. excelsa* 'Fire Mountain':** a small tree with a wide growth habit and very bright orange-scarlet flowers (Hutchinson, 1988; Hobbs, 1992; ARC, 1999). It was obtained from a parent plant growing near the AFFCO Freezing Works in North Taranaki. This is one of several selections made by the late Felix Jury through the 1970s by assessing plants growing along the bank of the Waitara River. These riverside plantings are said to have originally come from a Palmerston North nursery sometime in the 1950s. Felix and Mimosa Jury selected the best forms and provided them to Duncan & Davies nursery to propagate and market (Mark and Abbie Jury, pers. comm.). This selection was originally called *M. excelsa* 'Rata Maid' by Felix Jury but it was never sold under that name. Duncan & Davies nursery released it as *M. excelsa* 'Fire Mountain' in 1988 along with several other *M. excelsa* cultivars (Hutchinson, 1988).

***M. excelsa* 'Firestone':** a large sprawling form with pointed leaves and large, rounded flower heads that are a bright fire-red colour. It was selected and introduced by Graeme Platt about 1983 and so-named because Graeme was collecting stones for a fireplace that he was building for his house. The parent tree was growing beside the place where he collected the stones on the slopes of Mt Moehau in northern Coromandel Peninsula (Edwards, 1989; Hobbs, 1992; ARC, 1999). Graeme does not recommend *M. excelsa* 'Firestone' for general commercial production as it is not a well structured tree.

***M. excelsa* 'Flame Crest':** a tall erect tree with an oval-shaped habit selected for its large and showy orange-scarlet flowers. This cultivar was selected by Cyril Watson and George Smith from a tree growing at Kawaroa Park, New Plymouth. It was first released by Duncan & Davies nursery in 1991 (Anon., 1991) and mentioned by Hobbs (1992). However, it no longer appears to be widely available.

***M. excelsa* 'Gold Finger':** a reverse-variegated selection with bright gold leaves that have green margins, reddish stems and deep crimson flowers (Hutchinson, 1988; Hobbs, 1992). This cultivar was introduced by Duncan & Davies nursery in 1986.

***M. excelsa* ‘Gold Nugget’:**

a variegated cultivar with fresh green leaves banded with a bright yellow margin. This cultivar was selected by Jim Rumbal and released by Duncan & Davies nursery in 2000. Note that this is a different cultivar to *M. umbellata* ‘Gold Nugget’.

***M. excelsa* ‘Hauraki’:** a tall erect tree that produces red flowers of outstanding size, density and colour. This cultivar was selected by Graeme Platt from Long Bay Regional Park, Auckland (Edwards, 1991; Hobbs, 1992). It does not appear to be widely available in the nursery trade.

***M. excelsa* ‘Kopere’:** a new selection with glossy green foliage and abundant vibrant orange-red flowers. Graeme Platt first encountered it on the foreshore at Brook Beach near Awhitu Regional Park in 2007 after being informed about it by Wayne and Trish Aspen of Awhitu. Graeme regards it as his most promising recent selection. *M. excelsa* ‘Kopere’ is in the early stages of production and not yet available to the public.

***M. excelsa* ‘Lighthouse’:** an average-sized tree with large leaves. It is an early-flowering selection that blooms in November (Edwards, 1990a, 1991; ARC, 1999; Metcalf, 2000). Graeme Platt selected it around 1983 and gave it the name “Lighthouse” because it was sourced from a tree growing near the lighthouse at the north-western end of Rangitoto Island. Graeme regards it as a well-structured tree with large attractive leaves and well suited to an average-sized garden but perhaps lacking the ‘wow factor’ of the best cultivars. It is currently available (e.g., Plantman online catalogue, 2010).

***M. excelsa* ‘Manukau’:** produces copious orange-red flowers with well-balanced tightly arranged flower heads that also bloom inside the canopy of the tree (Edwards, 2000). The original tree is growing near Manukau City shopping centre (Fig. 10A–B). Phil Jew (former Director of Parks, Auckland Regional Authority) brought this tree to the attention of Graeme Platt who introduced propagation material around 1990.



Fig. 10 *Metrosideros excelsa* ‘Manukau’. **A**, mature original tree growing near the Manukau City shopping centre. **B**, close-up of its flowers. Photos: Jack Hobbs.

***M. excelsa* ‘Maori Princess’:** an open-branched, upright tree with striking red flowers that have a mauve tone to the filaments (Redgrove, 1983; Metcalf, 1987, 2000; ARC, 1999). It was selected from a large tree planted (perhaps in the 1940s) in Brougham Street, New Plymouth (Fig. 11). The late Ian McDowell recognised its value for wider propagation while he was employed at the Parks and Reserves Department of the New Plymouth City (later District) Council. This cultivar was trialled among about 20 selections by Duncan & Davies nursery in the late 1970s and early 1980s. Named by the late Trevor Davies, *M. excelsa* ‘Maori Princess’ was not released on a commercial scale by their nursery. Although Duncan & Davies probably did not propagate additional plants of it, some of the trial plants may have been sold to the Auckland Regional Council. ARC considered it to be a superior selection as a street tree because it does not develop untidy aerial roots as some forms do. This cultivar is available in the nursery trade (e.g., Gaddum, 2001; Plant Production online catalogue, 2010; Plantlife Propagators online catalogue, 2010; Plantman online catalogue, 2010).



Fig. 11 *Metrosideros excelsa* ‘Maori Princess’. This is the original tree growing in Brougham Street, New Plymouth, from which cuttings were obtained for cultivar production. Photo: Rainbow Trees, Auckland.

***M. excelsa* ‘Moon Maiden’:** light-grey-green foliage and sulphur-yellow flowers produced in early summer. This cultivar is a selected and vegetatively propagated form of *M. excelsa* ‘Aurea’ of superior habit and flower colour. It was named *M. excelsa* ‘Moon Maiden’ to separate it from *M. excelsa* ‘Aurea’ which could potentially vary slightly from seed. *M. excelsa* ‘Moon Maiden’ was introduced by Duncan & Davies nursery in 1988 (Hutchinson, 1988; Hobbs, 1992) and is still available (e.g., Plantman online catalogue, 2010).

***M. excelsa* ‘Mt Maunganui’:** the original tree is growing in Pitau Road, Mount Maunganui, Tauranga. This very large tree is the last remaining pre-European pōhutukawa on the Mt Maunganui ‘sand bar’. The tree is 29 m across and 12–15 m tall and is estimated to be 400–500 years old (Steve Webb, pers. comm.). It has local Ngāi Te Rangi iwi significance and in the early days of colonial settlement, several Māori skeletons were found at the base of the tree. In about 1990, the tree had a major ‘split out’ failure which resulted in a propping system being installed to stabilise the remaining tree. In about 1993, the Specimen Tree Company of Auckland obtained propagation material to maintain this historic tree (Gordon Ikin, pers. comm.). Cutting-raised material is available at Lyndale Nurseries (online catalogue, 2010; Fig. 12).



Fig. 12 *Metrosideros excelsa* 'Mt Maunganui'. Photo: Lyndale Nurseries.

***M. excelsa* 'Ohope'**: a variegated form with large green leaves with a cream margin (Hobbs, 1992). We do not know who introduced it but from its name we guess that it came from Ohope near Whakatane.

***M. excelsa* 'Parnell'**: propagated by Graeme Platt from a very large spreading tree (15 m tall and about 50 m across) cultivated in the Parnell Rose Gardens, Auckland City (Edwards, 1987a, 1989, 1990b, 1991; ARC, 1999; Metcalf, 2000). This tree is probably the largest pōhutukawa in cultivation.

M. excelsa 'Parnell' was the first pōhutukawa cultivar selected by Graeme Platt, sometime in the early 1970s. He regards it as being too large for most gardens or as a street tree, but ideal where there is plenty of room for it to develop as a coastal, park or shade tree. He also notes that it can be trained effectively on a single trunk. The flowers carry notably more pollen than most pōhutukawa. The original tree is said to have been planted in 1853 by Sir John Logan Campbell, the first Mayor of Auckland (Simpson, 2005). Graeme Platt considers it may alternatively have been planted by Judge Gillies who lived in what is now the tea house at Dove-Myer Robinson Park. It is currently available in the nursery trade (e.g., Plantlife Propagators online catalogue, 2010; Plantman online catalogue, 2010).

***M. excelsa* 'Pink Lady'**: a small upright tree ideal for smaller gardens. It has deep-green glossy leaves and produces compact heads of pinkish

flowers (Hutchinson, 1988; Hobbs, 1992). *M. excelsa* 'Pink Lady' was selected by Duncan & Davies nursery and released in 1988. It is currently available (e.g., Plantman online catalogue, 2010).

***M. excelsa* 'Plus Four'**: a new cultivar selected from a tree found on Awhitu Golf Course in 2002 by Graeme Platt. Cutting material was collected by Jack Hobbs and propagated and trialled at Auckland Botanic Gardens where it is proving to be one of the most promising cultivars in their extensive collection (Fig. 13). Jack Hobbs named it *M. excelsa* 'Plus Four' after the traditional trousers that golfers wear. It has a very upright growth habit and flowers heavily every summer. Its flowers are true red with a brightness missing from many other red-flowered forms. The foliage is more rounded than is typical for the species. This cultivar is not yet available to the public.



Fig. 13 *Metrosideros excelsa* 'Plus Four'. Photo: Jack Hobbs.

***M. excelsa* 'Pouawa'**: a cultivar with good flowers that last for a long time (Edwards, 1991). It was selected by Rob Bayly and Graeme Platt from a row of pōhutukawa trees growing on the sheep station of Bill Williams north of Gisborne. A few plants were sold but it does not appear to be currently available.

***M. excelsa* 'Rangitoto'**: an upright smallish tree with dark red flowers. It was selected in the mid- to late 1980s by Tom Johnson (pers. comm.; Anon., 2001a) who at the time was working for Dawn Nurseries (now Dawn-Rothay Nurseries) in Auckland. He selected it from a seed grown tree cultivated in a home garden at Te Atatu. The home owner collected it from the summit of Rangitoto Island. It was propagated from cuttings and

marketed by Bruce Haggio also of the then Dawn Nurseries (Edwards, 1987a; Bruce Haggio and Tom Johnson, pers. comm.). Plants have been available (e.g., Gaddum, 1999a, 1999b, 2001).

***M. excelsa* 'Royal Flame'**: an upright tree that develops a round crown and has dark green leaves. It is a late flowerer and produces many large, deep glowing crimson flowers with contrasting yellow anthers (Hutchinson, 1988; Hobbs, 1992). It was selected from a tree growing in the Waitara West Marine Park by Jim Rumbal and released by Duncan & Davies nursery in 1988.

***M. excelsa* 'Scarlet Pimpernel'**: a smallish tree with compact rounded growth and scarlet flowers that open simultaneously (Fig. 14; Redgrove, 1983; Metcalf, 1987, 2000; Hobbs, 1992; ARC, 1999). This cultivar flowers late December and is suitable for growing in containers on decks and patios. It was one of the first cultivars selected by the late Felix Jury, who propagated it from a street tree on Princess Street, Waitara, close to the parent plant for *M. excelsa* 'Fire Mountain' (Mark Jury, pers. comm.). *M. excelsa* 'Scarlet Pimpernel' was released by Duncan & Davies nursery in 1976 and is still available (e.g., Plantlife Propagators online catalogue, 2010; Plantman online catalogue, 2010).



Fig. 14 *Metrosideros excelsa* 'Scarlet Pimpernel'. Photo: Naturally Native NZ Plants.

***M. excelsa* 'Sunglow'**: a cultivar with leaves that are green in the middle variegated with broad gold margins and buttery-yellow new growth with reddish tinges (Redgrove, 1983; Metcalf, 1987, 2000; Hutchinson, 1988; Hobbs, 1992). This is a superior variegated selection introduced by Duncan & Davies nursery in 1980. It is difficult to propagate in commercial numbers but is still considered among

the best of the variegated selections of pōhutukawa. The original plant may have come to Duncan & Davies from the late Oswald Blumhardt, a plant collector and breeder from Whangarei.

***M. excelsa* 'Tamaki'**: a cultivar with large leaves and large bright orange-red flowers. Selected and introduced by Graeme Platt around 1985 from a cultivated tree on Tamaki Drive, Auckland City (Edwards, 1991; Hobbs, 1992; ARC, 1999). Graeme rates it as one of the best pōhutukawa cultivars despite not flowering heavily until relatively mature. It is not widely available.

***M. excelsa* 'Te Kaha'**: a medium-sized bushy tree with large leaves, very long stamens and bright red flowers with a hint of orange that appear just prior to Christmas (Hobbs, 1992; ARC, 1999). This cultivar was selected and introduced in the mid-1980s by Graeme Platt, who discovered it on the seaward side of the Te Kaha Hotel in the Bay of Plenty. It is not widely available.

***M. excelsa* 'Titirangi'**: an erect tree with abundant large bright scarlet-red flowers that can also appear inside the canopy of the tree (Fig. 15; Edwards, 2000). Found by Graeme Platt in the late 1980s growing near a block of flats in Margan Ave, near Titirangi Golf Course, Auckland. It is regarded by Graeme as one of the best available pōhutukawa cultivars (second only to *M. excelsa* 'Vibrance'), but does not appear to be widely sold.



Fig. 15 *Metrosideros excelsa* 'Titirangi'. Photo: Jack Hobbs.

***M. excelsa* 'Upper Hutt'**: an upright tree that is reasonably compact and does not sprawl. It was selected for its unusual reverse-variegated foliage which is green along the margins with creamy-yellow centres speckled with green (Edwards, 1990c; Hobbs, 1992). This selection originated as a variegated seedling in the public gardens at Upper Hutt.

It has also been sold under the names *M. 'Frosty Morn'* and for a short time as *M. excelsa* 'Vibrance Variegata' (Gaddum, 1999a, 2001; John Liddle, Lex Kenny and Malcolm Woolmore, pers. comm.).

***M. excelsa* 'Variegata'**: as the name suggests this is a variegated cultivar, with green centres and grey-green and yellow margins which are sometimes speckled with green (Metcalf, 1987, 2000). The red flowers make a stark contrast with the variegated foliage that is not to everyone's taste (Fig. 16A–B).



Fig. 16 *Metrosideros excelsa* 'Variegata'. A, mature tree. B, close-up of leaves and flowers. Photos: Murray Dawson.

There has been much confusion about the correct species for cultivars named "Variegata". We agree with Metcalf (1987, 2000) that there are distinct cultivars under that name for both *M. excelsa* and *M. kermadecensis*. It is also possible that that some of the variegated forms are hybrids (e.g., Hobbs, 1992).

***M. excelsa* 'Vibrance'**: an upright medium-sized tree with long rounded leaves, exceptionally long stamens and vibrant orange-red flowers that appear from mid-December (Fig. 17A–B). John Dodsworth-Smith first alerted Graeme Platt to this exceptional tree and Graeme obtained cutting material of it around 1985. Terry Hatch suggested the name "Vibrance" to Graeme Platt and he named it well because even

young plants have a brilliant display of flowers. It was subsequently incorrectly given an informal name "Waiomu Bay" after the place of its discovery. The original tree is planted in a reserve near the sea at Waiomu Bay on the Thames Coast, Coromandel Peninsula (Edwards, 1989, 2000; Hobbs, 1992; ARC, 1999; Metcalf, 2000).



Fig. 17 *Metrosideros excelsa* 'Vibrance'. A, tree in full bloom. B, close-up of flowers. Photos: Jack Hobbs.

M. excelsa 'Vibrance' is ideal for growing in large containers and in home gardens. An avenue of it is planted at the Auckland Botanic Gardens where they provide an outstanding display every year. This cultivar is now widely grown and probably the best named form of pōhutukawa currently in commercial production.

***M. excelsa* 'Whakarewarewa'**: has a brown-hued tomentum (dense matted hairs) on the underside of the leaf and the darkest red flowers of any selection (Edwards, 1991). This cultivar is one of two selections made in the late 1980s by Graeme Platt, from Whakarewarewa, Rotorua. The other selection is *M. xsub-tomentosa* 'Rangi' (see previous section on natural hybrids) and neither cultivar appears to be commercially available.

***Metrosideros kermadecensis*
(Kermadec pōhutukawa)**

The Kermadec pōhutukawa, as its common name suggests, is naturally restricted to Raoul Island in the Kermadec Islands group where it is the dominant canopy tree and can grow to 20 m tall (Allan, 1961; Dawson, 1988).

As mentioned earlier, the Kermadec pōhutukawa is quite similar and closely related to pōhutukawa (*M. excelsa*) of the New Zealand mainland. *M. kermadecensis* differs in having smaller leaves (up to 5 cm long) that are more rounded and has smaller flowers. In cultivation selections grow 3–6 m tall (smaller than many of the *M. excelsa* selections) and spread their flowering sporadically throughout the year instead of having a single mass flowering event. Plants are probably more frost tender than *M. excelsa* especially when young. Unfortunately, plants of *M. kermadecensis* are often sold in nurseries and garden centres mislabelled as *M. excelsa*.

There are about 12 cultivars of *M. kermadecensis* and all except *M. kermadecensis* 'Platt's Form' have variegated or variously coloured leaves. The species was grown in quite large numbers from seed at Duncan & Davies and as a result they discovered and raised several variegated seedlings during the 1960s and 1970s. Cultivars with known origins include the following.

***M. kermadecensis* 'Gold Band':** this cultivar does not have red stems and is similar to *M. kermadecensis* 'Variegata' but with a slightly brighter margin of creamy-yellow variegation (Green, 1975; Metcalf, 1987, 2000). This cultivar was selected by the late Trevor Davies and released by Duncan & Davies nursery in 1975. Production was eventually discontinued at that nursery as it did not propagate as readily as *M.* 'Variegata'. *M. kermadecensis* 'Gold Band' does not seem to be currently available in the nursery trade.

***M. kermadecensis* 'Lewis Nicholls':** leaves are reverse-variegated – broadly yellow-blotched in the centre with a rather narrow margin of deep green. Young foliage is an apricot colour and stems are red. This cultivar

is named after a former Director of Parks in Napier (Metcalf, 1987, 2000) and was probably selected in the early 1980s (Redgrove, 1983).

***M. kermadecensis* 'Platt's Form':** selected by Graeme Platt from large trees growing in Purewa Cemetery in Meadowbank, Auckland. He selected this cultivar for its particularly small round leaves that are very distinct from the range of variation in the related *M. excelsa*. All plants were grown from cuttings and have been available (e.g., Gaddum, 1997, 1999a, 1999b, 2001).

***M. kermadecensis* 'Radiant':** leaves are bright deep green and rounded, reverse-variegated with a central splash of deep golden yellow (Redgrove, 1983; Metcalf, 1987, 2000). Juvenile stems are red and adult stems have a pale tomentum that is not red. Flowers are deep scarlet with gold-tipped stamens. This cultivar was selected at Duncan & Davies and considered to be a brighter and more stable form than *M. kermadecensis* 'Sunninghill', which is somewhat similar but paler and prone to reversion. It was listed in Duncan & Davies Nursery Trade Catalogue in 1980 and in Gaddum (1997, 2001) but it does not seem to be currently available.

***M. kermadecensis* 'Red and Gold':** green rounded leaves with bright gold margins and new juvenile stems that are bright red, making a showy contrast. This cultivar differs from *M. kermadecensis* 'Gold Band' with leaves that are more rounded, without the ovate pointed tip, and with brighter yellow variegation and showy red stems. *M. kermadecensis* 'Red and Gold' was raised as a variegated seedling by Duncan & Davies nursery and released by them in 1973. It has been widely grown (e.g., Green, 1975; Metcalf, 1987, 2000; Gaddum, 1997, 1999a, 1999b, 2001).

***M. kermadecensis* 'Sunninghill':** green leaves variegated with irregular blotches of creamy-yellow in the middle and reddish branchlets. This reverse-variegated cultivar tends to lose much of its variegation as the plant gets older. It was named by the late H. J. (Jack) Clark after his Sunninghill Nursery in Auckland and probably raised in the late 1960s (Metcalf, 1969, 1987, 2000; Green,

1975; Redgrove, 1983). This cultivar was listed by Gaddum (1999a, 1999b, 2001) but it is not widely available.

***M. kermadecensis* 'Variegata':** variegated as its name suggests and the oldest and best-known selection of the species (Redgrove, 1966, 1983; Green, 1975; Metcalf, 1987, 2000; Hobbs, 1992). It grows into a small tree to about 4 m with dark-green rounded leaves variegated with grey-green markings and a creamy-white margin (Fig. 18). The overall effect of the light-coloured foliage contrasts against the deep crimson flowers. It is suitable as a specimen tree, container or hedge plant. It was probably first released by Duncan & Davies nursery and was listed in their c. 1940–1942 catalogue (no. 16) under the name "*Metrosideros tomentosa variegata*". Subsequent early records called it "*M. excelsa variegata*" and other names until it changed to "*M. kermadecensis variegata*" in 1968 (Duncan & Davies 1968 Retail Catalogue; Davies, 1968). *M. kermadecensis* 'Variegata' received the RNZIH Award of Garden Excellence in 1966 (Redgrove, 1966) and is still widely available. As mentioned, the correct species applied to the cultivar name "Variegata" is often confused.



Fig. 18 *Metrosideros kermadecensis* 'Variegata'. Photo: ©Paul Ashford, www.NZPlantPics.com.

This concludes the discussion of the pōhutukawa cultivars derived from *M. excelsa* and *M. kermadecensis*. The remaining *Metrosideros* species and cultivars – the rātā trees and vines – along with the references to both parts are documented in Part Two.

Pōhutukawa cultivars of uncertain origin

The following are said to be cultivars of *Metrosideros excelsa* and *M. kermadecensis* but we lack details of their places of origin, who raised them, when they were raised, and when they were introduced into cultivation.

We would gratefully receive further details of these cultivars, other *M. excelsa* and *M. kermadecensis* cultivars, and cultivar origins of the other species of *Metrosideros*.

***M. excelsa* 'Beoley Gold'**: listed as *M. excelsus* 'Beoley Gold' at The Tree Source (online catalogue, 2010), a Californian based Internet inventory of plants. This listing may suggest that the cultivar was raised in the USA or it has possibly been renamed there. It is not known under that name in New Zealand.

***M. excelsa* 'Jester'**: first published in the late 1970s under the name *M. kermadecensis* 'Jester' (Wilson's Nurseries nursery catalogue, 1977; Duncan & Davies Trade List, 1978). The species to which this cultivar belongs is probably *M. excelsa* (Gaddum, 1999a, 2001). However, we have no details of who raised it.



Fig. 19A–B *Metrosideros excelsa* 'Lemon Twist', showing variegated foliage. Photos: Benara Nurseries.

***M. excelsa* 'Lemon Twist'**: this is a new cultivar raised in Australia and not yet available in New Zealand (Fig. 19A–B). It is low growing (to 1.5 m tall) and is named after its unusual foliage. New leaves are pure lemon-yellow becoming reverse-variegated with irregular yellow-green and green margins as they age. The leaves are somewhat undulated and twisted. The application by Quito Pty Ltd for Australian Plant Breeders Rights (PBR) was accepted in April 2010. Details of this cultivars' origin should soon become available as part of the PBR process.

***M. excelsa* 'Midas'**: this reverse-variegated cultivar has bluntly pointed leaves with golden-yellow centres and green outer margins; young stems are red (Fig. 20A–B). It is currently available in both Australia and New Zealand (e.g., Kinsey, undated; Gaddum, 2001; Benara Nurseries online catalogue, 2010; Plant Production online catalogue, 2010). We do not know of its origins.



Fig. 20 *Metrosideros excelsa* 'Midas'. A, young plants grown in pots. B, close-up of variegated foliage and red stems. Photos: Benara Nurseries.

***M. excelsa* 'Springtime'**: listed in a Wilson's Nurseries nursery catalogue (No. 64, 1979) as having "lightly variegated foliage". We do not have further details of this old selection.

***M. kermadecensis* 'Cream Ridge'**: a name used at several Australian nurseries but not in New Zealand. It is illustrated and described by Benara Nurseries (online catalogue, 2010) as having red flowers and red stems with small variegated leaves that are green margined with creamy-white (Fig. 21A–B). We do not know if this is a new selection raised in Australia or if it is an existing cultivar that has been renamed.



Fig. 21 *Metrosideros kermadecensis* 'Cream Ridge'. A, young plants grown in pots. B, close-up of variegated foliage and red stems. Photos: Benara Nurseries.

***M. kermadecensis* 'Frosty'**: listed in Gaddum (1997, 1999a, 1999b, 2001). We do not know the origins of this cultivar or if it is different to *M. excelsa* 'Frosty Morn'.

***M. kermadecensis* 'Gala'**: another name used in Australia but not New Zealand. Described by Kinsey (undated) as a variegated cultivar with "the reverse of [*M. kermadecensis* 'Variegata' in] having a golden middle with a green margin". This description sounds similar to *M. kermadecensis* 'Lewis Nicholls' or *M. kermadecensis* 'Sunninghill'.

***M. kermadecensis* 'Goldsplash'**: listed in Gaddum (2001) and only appears to have been offered under that name from the former Lakeside Nursery, Kerikeri. It is likely that this name is in error.

Box 1 Subgenera, species, and distributions of *Metrosideros*.

The 53 or so species of *Metrosideros* are grouped into three subgenera. Subgenus *Metrosideros* comprises 25 species of trees and shrubs, primarily with red flowers – except for two white-flowered species (*M. bartlettii* and *M. oreomyrtus*), one pale-yellow-flowered species (*M. ochrantha*), and some rare individual plants with yellow flowers (e.g., within the usually red-flowered *M. excelsa*, *M. polymorpha* and *M. umbellata*).

Subgenus *Mearnsia* comprises 24–25 species of trees, shrubs (some epiphytic) and vines, with red, pink or white flowers.

The third subgenus, *Carpolepis*, comprises 3 species of rainforest trees from New Caledonia (of which two are hemi-epiphytic), all with bright yellow flowers. The species included here as a subgenus in *Metrosideros* have previously been considered to be in their own genus (*Carpolepis*), and '*M.* *tardiflora*' has not yet been formally transferred into *Metrosideros*.

The following arrangement of species was adapted from Wikipedia (<http://en.wikipedia.org/wiki/Metrosideros>) with the help of *Metrosideros* expert John Dawson (pers. comm.).

1. Subgenus *Metrosideros*

- M. bartlettii* J.W.Dawson
– Bartlett's rātā (New Zealand)
- M. boninensis* (Hayata ex Koidz.) Tuyama (Bonin Islands)
- M. cherrieri* J.W.Dawson (New Caledonia)
- M. collina* A.Gray (from Vanuatu in the southwest to French Polynesia in the east)
- M. engleriana* Schltr. (New Caledonia)
- M. excelsa* Sol. ex Gaertn. – pōhutukawa, New Zealand Christmas tree (New Zealand)
- M. gregoryi* Christoph. (Samoa)
- M. humboldtiana* Guillaumin (New Caledonia)
- M. kermadecensis* W.R.B.Oliv. – Kermadec pōhutukawa (Kermadec Islands)
- M. macropus* Hook. & Arn. – lehua mamo (Hawai'i)
- M. microphylla* (Schltr.) J.W.Dawson (New Caledonia)
- M. nervulosa* C.Moore & F.Muell. (Lord Howe Island)
- M. nitida* Brongn. & Gris (New Caledonia)
- M. ochrantha* A.C.Sm. (Fiji)
- M. oreomyrtus* Daniker (New Caledonia)
- M. polymorpha* Gaudich. – 'ōhi'a lehua (Hawai'i)
- M. punctata* J.W.Dawson (New Caledonia)
- M. robusta* A.Cunn. – northern rātā (New Zealand)
- M. rugosa* A.Gray – lehua papa (Hawai'i)
- M. salomonensis* C.T.White (Solomon Islands)
- M. sclerocarpa* J.W.Dawson (Lord Howe Island)
- M. tetrasticha* Guillaumin (New Caledonia)
- M. tremuloides* Rock – lehua 'āhihi (Hawai'i)
- M. umbellata* Cav. – southern rātā (New Zealand)
- M. waialealae* Rock (Hawai'i)

2. Subgenus *Mearnsia*

- M. albiflora* Sol. ex Gaertn. – akatea, large white rātā (New Zealand)
- M. angustifolia* Dum.Cours. (South Africa)
- M. brevistylis* J.W.Dawson (New Caledonia)
- M. cacuminum* J.W.Dawson (New Caledonia)
- M. carminea* W.R.B.Oliv. – akakura, carmine rātā, crimson rātā (New Zealand)
- M. colensoi* Hook.f. – rātā (New Zealand)
- M. cordata* (C.T.White & Francis) J.W.Dawson (New Guinea)
- M. diffusa* (G.Forst.) Sm. – white rātā (New Zealand)
- M. dolichandra* Schltr. ex Guillaumin (New Caledonia)
- M. fulgens* Sol. ex Gaertn. – scarlet rātā vine (New Zealand)
- M. halconensis* (Merr.) J.W.Dawson (Philippines)
- M. longipetiolata* J.W.Dawson (New Caledonia)
- M. operculata* Labill. (New Caledonia)
- M. ovata* (C.T.White) J.W.Dawson (New Guinea)
- M. paniensis* J.W.Dawson (New Caledonia)
- M. parkinsonii* Buchanan – Parkinson's rātā (New Zealand)
- M. patens* J.W.Dawson (New Caledonia)
- M. perforata* (J.R.Forst. & G.Forst.) A.Rich. – aka, small white rātā (New Zealand)
- M. porphyrea* Schltr. (New Caledonia)
- M. ramiflora* Lauterb. (New Guinea)
- M. rotundifolia* J.W.Dawson (New Caledonia)
- M. scandens* Druce (New Guinea)
- M. whitakeri* J.W.Dawson (New Caledonia)
- M. whiteana* J.W.Dawson (New Guinea)
- M. new species* (unnamed) (Solomon Islands)

3. Subgenus *Carpolepis*

- M. elegans* Beauvis. (New Caledonia)
- M. laurifolia* Brongn. & Gris (New Caledonia)
- '*M.* *tardiflora*' (New Caledonia)



A solitary pōhutukawa growing on the Awhitu Peninsula, Auckland. Photo: Jack Hobbs.