

A history of *Leptospermum scoparium* in cultivation: Discoveries from the wild

The first of a two-part series

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Leptospermum, of the Myrtaceae family, is a floriferous genus of horticultural merit with a long history of cultivation. *Leptospermum scoparium* J.R.Forst. & G.Forst. and other species of this genus have been grown in England since 1772. Today, leptospermums are cultivated in many countries, including the UK, France, Denmark, Israel, South Africa, the USA, Australia and New Zealand.

For many years botanists thought there were about 30 species of *Leptospermum*. However, in 1989 Joy Thompson published a major revision of the genus that recognised 79 species. These are mainly confined to Australia, with two species in South East Asia, and one species each in New Zealand and New Guinea. Since Thompson's (1989) revision, Bean (1992, 2004), Lyne (1993), and Lyne and Crisp (1996) have described or reinstated eight species, raising the total to 87 species.

Despite the high number of species and diversity found in Australian *Leptospermum*, by far the most ornamental cultivars are derived from New Zealand *L. scoparium* ('tea-tree' or 'mānuka'²). This is the only species that occurs naturally in New Zealand, where it is widespread and abundant, growing from North Cape to Stewart Island in lowland to subalpine areas. The other two *Leptospermum* species recognised by Allan (1961) have since been transferred to the related genus *Kunzea* (Thompson, 1983; Harris, 1987). Like mānuka, *K. ericoides* (A.Rich.) Joy Thomps., or kānuka, is widespread in New Zealand. Mānuka and kānuka are superficially similar, and are often confused by the casual observer.

A third species, *K. sinclairii* (Kirk) W.Harris is confined to Great Barrier Island. Allan (1961) considered all three species to be endemic to New Zealand, but Thompson (1983) recognised *L. scoparium* and *K. ericoides* as occurring in Australia also. However, de Lange (2006) agrees with Allan (1961) and others that all forms of *K. ericoides* (kānuka) in New Zealand are endemic. DNA sequencing and other work has recently been completed that helps resolve the status of *L. scoparium* and *K. ericoides* forms both here and in Australia (de Lange, 2007; Peter de Lange, pers. comm.).

In New Zealand *L. scoparium* is highly polymorphic. Although some of this great natural variation is a response to its environment, much is genetically determined and is maintained in cultivation. Typically mānuka is a medium-sized shrub, but prostrate and dwarf forms and tall trees are also found. Usually *L. scoparium* has white flowers, but flower colour ranges from a pale pink blush to pink in the variety *incanum* (Allan, 1961), which occurs naturally in the far north of the North Island.

This variety has directly contributed several ornamental cultivars to horticulture, e.g., *L. 'Keatleyi'*, discovered in 1917 (Stevens, 1944).

Red-flowered mutant plants are extremely rare, but are so visible in the wild they are easily recognised. The best known of these, *L. 'Nichollsii'*, was found in 1898 in the South Island (Metcalfe, 2000). Double-flowered plants (another rare mutation) have also been discovered in the wild and brought into cultivation, such as *L. 'Leonard Wilson'*, found in 1915–1916 (Cockayne, 1918).



Fig. 1 Map showing cultivar origins of *L. scoparium* from wild localities in New Zealand.

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² The common name 'tea-tree' derives from the usage of the leaves of *L. scoparium* as a tea substitute by Captain Cook's sailors. However, the name tea-tree (sometimes corrupted to 'ti-tree') is also used for the Australian species *Melaleuca alternifolia* Maiden & Betche ex Cheel, and other species of *Leptospermum*. Also, although 'mānuka' is the Māori word most commonly used for *L. scoparium*, 'kahikatoa' is the more correct name.

Such introductions from the wild (Fig. 1) have provided the pool of variation that has contributed to the many improved cultivars of today. Some 150 cultivars of *L. scoparium* have been named, of which more than 70 are still cultivated. This compares with about 30 cultivars for all the remaining species of *Leptospermum*.

Knowledge of cultivar origins is useful to botanists, plant breeders, the nursery trade, collection managers and garden enthusiasts. However, cultivar origins are often obscure because of inadequate recording by collectors and raisers. Mistakes are frequently repeated in popular gardening books as the authors seldom seek out original references. The difficulties are compounded because the information is scattered through nursery catalogues, numerous small articles, or is unpublished and known to a few nurserymen only.

This article brings together the scattered information on *L. scoparium* and records many cultivar origins for the first time. Part One documents those cultivars introduced from the wild. Part Two will cover the history of cultivar improvement, from chance garden seedlings to deliberate breeding efforts, and will include brief horticultural notes.

White flowers

The usual wild form of mānuka is so common in New Zealand that its virtues as a garden plant are often overlooked. However, its white single flowers possess a simplicity and appeal different from the more gaudy pink or red double-flowered cultivars. In response to this, horticulturist and plant collector Graeme Platt released *L.* 'Karekare' (Fig. 2), which has pure white, well-spaced, single flowers, distinctive fresh-green broad leaves, and a compact growth habit. Platt discovered the original plant growing wild on the side of Lone Kauri Road, behind the beach at Karekare, Auckland, during the 1970s (Hobbs, 1989, 1991; Graeme Platt, pers. comm.). *Leptospermum* 'Karekare' has been introduced into the UK (*The Plant Finder*, 1991).

In England, Graham Hutchins (County Park Nursery, Hornchurch) has named several cultivars of



Fig. 2 *L. scoparium* 'Karekare'.

Leptospermum (County Park Nursery information sheets 17–19, 1989; www.countyparknursery.co.uk; Graham Hutchins, pers. comm.). On visits to New Zealand, he collected seed of *L. scoparium* from wild localities, raised plants at his nursery, and chose the best plant from each locality. This plant was then propagated from cuttings and named after the locality from which the seed was originally collected. Three such selections are *L.* 'Lyndon', from seed collected in 1977 from Lake Lyndon, Canterbury, *L.* 'McLean', from seed collected in 1981 from McLean Stream, near Clarence River, Marlborough, and *L.* 'Nelson', from seed probably collected in 1990 from the Nelson area. *L.* 'Lyndon' and *L.* 'McLean' are currently available from County Park Nursery.

Another English cultivar with white single flowers is *L.* 'Alfred Coates'. The original plant has been growing at Wakehurst Place, West Sussex, for many years, and is named after the former Head Gardener. It received an RHS Award of Merit in June 1972, and is a Registered Cultivar, but of unknown wild origin (Flanagan, 1989). *L.* 'Alfred Coates' is not widely grown and, like Hutchins' selections, is probably little different from the usual variation in the wild species. These English-raised cultivars are not available in New Zealand.

White double flowers occur occasionally on mānuka plants in the wild, and have been reported several times. These flowers have numerous petals instead of the usual five found in single flowers of *L. scoparium*. A few years before 1910, a mānuka with

white double flowers was discovered by Mr E. Phillips Turner (Inspector of Scenic Reserves) in the Volcanic Plateau Botanical District, Central North Island (Cockayne, 1910, 1918). It does not appear to have been established into cultivation. In 1913 another white double-flowering plant was found at Torrent Bay, Nelson, and was probably propagated by the former Nairn & Sons' nursery in Christchurch (Cockayne, 1918).

The first white double to become readily available was *L.* 'Leonard Wilson', initially propagated by Mr J. Young, then Curator of the Christchurch Botanical Gardens. *L.* 'Leonard Wilson' was named by Dr Leonard Cockayne after Mr L. H. Wilson, who discovered it growing wild on his property at Port Levy, Banks Peninsula, Canterbury, around 1915–1916 (Cockayne, 1918). This cultivar can still be found in the UK (e.g., *The Plant Finder*, 1995; *RHS Plant Finder* online), but is no longer grown under that name in New Zealand. It may have been renamed *L.* 'Album Flore-pleno' (Metcalf, 1963).

An apparently whiter double, *L.* 'Sir George Fenwick', was placed on the local market by Mr MacDougall of Dunedin (McCaskill, 1940). It was discovered at Long Point, south of Nugget Point, Otago, ironically as a result of the wreck of the *SS Manuka* in 1929. Ingram (1990) gives the correct location and date of this wreck – it was not at Waipapa Point as stated by McCaskill (1940). This cultivar was named after a well-known Otago plantsman, probably to commemorate his death in 1929.

Another white double was discovered near Lake Hawea, Otago, in 1934 by Dr W. Sutherland, of Lawrence, Otago. A branch was sent to Mr M. J. Barnett who propagated several plants and planted them at Victoria Park, Christchurch. McCaskill (1940) considered this the best white double-flowered mānuka found and provided a photograph of it. This plant was unnamed when his article was written, and it is not certain whether it was given a cultivar name and commercially released.

Pink flowers

The most widely grown mānuka with pink single flowers is *L. scoparium* var. *incanum* 'Keatleyi' (Fig. 3). It received an RHS Award of Merit when shown in England by Mr P. M. Syngé in April 1961. *L.* 'Keatleyi' was discovered between Parengarenga Harbour and North Cape in 1917 by Captain Keatley (Stevens, 1944). Its source was not Hokianga Harbour as stated in an early Duncan & Davies Nursery Catalogue (no. 15, 1928–30) and often repeated (e.g., Harrison, 1974). Captain Keatley gave cuttings of the wild plant to several friends, but only Fred Walker of Wanganui successfully propagated it. Mr Walker distributed material to various nurserymen, including Mr W. Kingsbeer of Palmerston North, who named this cultivar after Captain Keatley (Stevens, 1944). *L.* 'Keatleyi' has large flowers and foliage, and in the mid-1980s, Graeme Platt suggested to me these features were related to it being a tetraploid³. My chromosome counts confirmed that Graeme Platt was indeed right, and *L.* 'Keatleyi' remains the only known tetraploid of *L. scoparium* (Dawson, 1990).

More recent pink single-flowered cultivars from *L. scoparium* var. *incanum* are those introduced during the early 1980s by Graeme Platt, who collected and propagated plants growing on the Aupouri Peninsula, in the far north of the North Island. His material was grown and evaluated at the Auckland Botanic Gardens, and the best selections were named. *L.* 'Aupouri' has white flowers with a pale pink blush. *L.* 'Julianne' and *L.* 'Sherryl Lee' (both named after Mr Platt's daughters)

have pink flowers and are tall and vigorous growers. *L.* 'Julianne' is floriferous but *L.* 'Sherryl Lee' is probably the better plant, with larger attractive peach-blossom pink flowers and new foliage with a silver sheen (Graeme Platt, pers. comm.; Hobbs, 1989, 1991).



Fig. 3 *L. scoparium* 'Keatleyi'.

Another cultivar with pink single flowers, *L.* 'Charmer', was discovered in Doubtless Bay, North Auckland, by Joyce Rumbal about 1987. Cutting material was collected from the original plant and propagated at Duncan & Davies nursery, New Plymouth (Jim Rumbal, pers. comm.).

Several mānuka cultivars produce pink double flowers, but the origins of the first ones are poorly documented. Among the earliest listed in Duncan & Davies nursery catalogues were *L.* 'Roseum Flore-pleno' (c. 1926), *L.* 'Roseum Multipetalum' (1928), and *L.* 'Princess Anne' (1962).

Double-flowered plants found in the wild and brought into cultivation are discussed by Drummond (1922). Most produced white flowers but a few bore pink flowers. It is not known whether any of these were given cultivar names and commercially propagated. Drummond (1922) referred to about 200 double-flowering plants that were taken over a 20-year period from a site at Totara North, Whangaroa Harbour, North Auckland. These were probably seedlings from an original plant discovered there by a Mr A. O. Smith (of Hokianga, North Auckland) in 1898. Smith's original plant was destroyed by fire about 1919 but some seed was previously collected and raised in cultivation at Wellington. Apparently at least one of the progeny had pink double flowers. Drummond (1922) also mentioned a Mr G. A. Green (of Auckland) who had occasionally seen white and pink double-flowering plants in the wild.

Stevens (1944) claimed that the first pink double-flowered mānuka was not found in the wild, but among some seedlings in Mr Fred Sanderson's garden in Auckland. However, Stevens provided no date for this event.

Red flowers

Red flowers are probably even rarer than double flowers in the wild. The first widely grown cultivar with this mutation was the deep rosy-red *L.* 'Chapmanii', named after Sir Frederic Chapman, who discovered it at Signal Hill on the outskirts of Dunedin between 1885 and 1890 (Humm, 1937; McCaskill, 1940; Harrison, 1974).



Fig. 4 *L. scoparium* 'Nichollsii' from *Revue Horticole*, 1912.

The next red-flowered find gave rise to *L.* 'Nichollsii' (Fig. 4), an historically important and well-known cultivar (e.g., Nairn's Catalogue, 1925; Jeffers, 1930; Humm, 1937; McCaskill, 1940; Harrison, 1974; Metcalf, 2000). *L.* 'Nichollsii' is sometimes incorrectly spelt *L.* 'Nichollii'. The parent plant was first found by Mr W. P. Spencer, on Sandilands Station, north of Christchurch, in 1898. In 1904 (or 1905) a flowering sprig of this plant was worn in the buttonhole of Mr William Nicholls when he visited the Nairn & Sons nursery in Christchurch. Mr Robert Nairn persuaded Nicholls to provide cutting material. The cuttings failed, but seed from attached capsules was successfully germinated. Some 110 seedlings were raised, of which seven had red flowers. The best one was

³ In tetraploids, the extra set of chromosomes often increases the size of the plant cells, and hence the size of the plant structures.

selected and named after Mr Nicholls. *L.* 'Nichollsii' was quite outstanding in its day, with deep crimson flowers and bronze foliage. In 1908 it was introduced to England by Captain A. A. Dorrien-Smith of Tresco, Isles of Scilly. He presented a plant to the Rev. A.T. Boscawen of the Ludgvan Rectory, Cornwall, who entered it in the International Horticultural Exhibition at Chelsea in May 1912, where it won the award for the best novelty plant exhibited. Although now superseded, *L.* 'Nichollsii' supplied the gene(s) for the red flowers seen in many of the cultivars grown today.

Leptospermum 'Nichollsii' and *L.* 'Chapmanii' are still cultivated in the UK (e.g., *The Plant Finder*, 1995; *RHS Plant Finder* online), but these historical cultivars are almost extinct in New Zealand. At least two other bright-crimson plants were discovered in the wild (Cockayne, 1910), but apparently were not brought into general cultivation.

Prostrate forms

Prostrate plants of *L. scoparium* have a trailing, ground-hugging growth habit that is distinct from the usual upright growth habit. A prostrate growth habit is often found in wild plants growing in exposed windy habitats. Sometimes a prostrate habit is a phenotypic (environmental) response; sometimes it is genotypically determined. For example, genetically distinct prostrate populations grow on infertile soils near Charleston, North Westland (Wardle et al., 1973), and on subalpine "moors" on Stewart Island (Cockayne, 1910; Wilson, 1987).

L. scoparium var. *prostratum* Hook.f. is an early varietal name for prostrate plants described as "naturally occurring on mountains" in New Zealand (Kirk, 1899). It is widely accepted that this formal varietal status is unwarranted (e.g., Allan, 1961). Furthermore, the name *L. scoparium* var. *prostratum* has been wrongly applied to cultivated plants of the Tasmanian species, *L. rupestre* Hook.f. (e.g., Halliwell, 1981). The word "prostratum" has also been used informally in cultivation for various prostrate plants of *L. scoparium*.

A prostrate growth habit is characteristic of several *L. scoparium* cultivars. Two old cultivars, *L.* 'Pendulum' with white flowers and



Fig. 5 *L. scoparium* 'Rarawa'. **A**, whole plant showing prostrate growth habit. **B**, close-up of flowers.

L. 'Pendulum-roseum' with pale pink flowers, are now seldom grown. A superior prostrate cultivar with pink flowers is *L.* 'Wairere', belonging to the variety *incanum*. This cultivar was raised from seed collected in 1944 by Norman Potts (of Opotiki, Bay of Plenty) on the northern side of the entrance to Parengarenga Harbour, in the far north of the North Island. Seedlings grown at Opotiki retained the prostrate habit of the wild plant. A selected seedling was given the cultivar name "Wairere" which is Māori for waterfall, referring to its semi-prostrate weeping growth habit. It was grown at the Otari Native Botanic Garden, Wellington, from where cutting material was distributed (Mole, 1967).

Seed of a prostrate plant was collected by Brian Toy in February 1986 from the north end of Rarawa Beach at Great Exhibition Bay, North Cape. Seedlings were grown on at the Auckland City Council Nursery, and the cultivar *L.* 'Rarawa' was selected

from this batch (Brian Toy and Esmé Dean, pers. comm.). *L.* 'Rarawa' (Fig. 5A–B) is prostrate, with large white single flowers and dense foliage.

The most recent prostrate cultivar originated from the South Island. A few seeds were collected from several prostrate and upright mānuka plants by Alison Evans in January 1989 from Pillar Point, near the base of Farewell Spit, Nelson. Cam Simpson (of the former C. H. Simpson Nurseries, Nelson) grew several seedlings on. Three seedlings retained a prostrate, dense habit, and had white flowers. One was propagated from cuttings and given the cultivar name *L.* 'Pillar Point' (*Commercial Horticulture*, June 1996; Alison Evans and Cam Simpson, pers. comm.).

Dwarf forms

Dwarf plants of *L. scoparium* are low growing and have reduced internodes and smaller leaves than the prostrate and taller-growing



Fig. 6 *L. scoparium* 'Nanum Kotuku'.



Fig. 7 Dwarf, compact growth form of *L. scoparium* cultivated at Lincoln.



Fig. 8 Variegated plant of *L. scoparium* growing in the wild.

forms. The dwarf cultivar *L.* 'Nanum' has an uncertain origin, but it may have been collected by the late Sir Victor Davies from the Rotorua or Taupo Volcanic Plateau thermal regions (Jim Rumbal, pers. comm.; Jim Rumbal, pers. comm. in Harris, 1994). It was first listed in the Duncan

& Davies Nursery Catalogue about 1940. *L.* 'Nanum' was renamed by Trevor Davies about 1972 to *L.* 'Nanum Kotuku' (Fig. 6; Jim Rumbal, pers. comm.). Material under both names is sold in the UK (e.g., *The Plant Finder*, 1995), but should be identical. *L.* 'Nanum' received

an Award of Merit from the RHS when shown in England by Messrs Ingwersen in June 1952. Because the growth habit is genetically fixed in *L.* 'Nanum', it has been possible to produce a series of dwarf cultivars from its seedlings. These have been given New Zealand bird names and are discussed in Part Two of this article.

A distinctive, low-growing, compact form of mānuka was discovered by the late Andrew Purdie in 1983, from Okiwi Bay, Marlborough (Harris, 1994). This dwarf, compact growth form may be an adaptation to the exposed, storm-prone coastal site. Material cultivated at Landcare Research, Lincoln (Fig. 7), has since been killed by frost, but this distinctive form should still be present in the wild.

Variegated leaves

In January 2009, I discovered a variegated mānuka growing in the wild near Charming Creek Road on the West Coast of the South Island (Fig. 8). Not all of that plant was variegated, but several branches were and it would have been possible to maintain the variegation from cuttings. I did not propagate this material because in my opinion variegation best suits larger leaved species rather than *L. scoparium*, which has small and narrow leaves.

Jack Hobbs also observed several variegated sports from his material raised in cultivation (one from *L.* 'Karekare'); none were commercially released.

Despite the remarkable array of forms introduced into cultivation, the pool of variation for *L. scoparium* in the wild is by no means exhausted.

This concludes the discussion of mānuka cultivars obtained from the wild. References for this article and selections arising in horticulture are documented in Part Two.

This article is based on an earlier version published in a UK journal: Dawson, M. I. 1997a: A history of *Leptospermum scoparium* in cultivation – discoveries from the wild. *The New Plantsman* 4(1): 51–59. I thank Mike Grant, the current editor of *The Plantsman*, for permission to adapt this content.