

Australian *Leptospermum* in cultivation: Species and cultivars

The first of a two-part series

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When Johann Reinhold Forster (1729–1798) and his son Johann Georg Adam Forster (1754–1794) described *Leptospermum* (family Myrtaceae), they aptly named the genus after its characteristic seeds (from the Greek ‘*leptos*’ meaning thin or slender and ‘*sperma*’ meaning seed). In 1776, the Forsters described the type species, *L. scoparium* J.R.Forst. & G.Forst. In the British Isles, this species was first offered for sale in nursery catalogues of around the same era (from the 1700s), but under botanical names in *Philadelphus*.

Early European settlers to New Zealand chose the common name ‘tea-tree’ for this species, following usage of the leaves as a tea substitute dating back to Cook’s voyages (Brooker et al., 1988). This common name is now used widely for all species of *Leptospermum* (and for *Melaleuca alternifolia* Maiden & Betche ex Cheel).

Currently there are 87 wild species of *Leptospermum* recognised (Dawson, 2009). Australia is the centre of diversity for the genus where most species are endemic; only *L. scoparium* extends from mainland Australia and Tasmania to New Zealand and *L. parviflorum* Valetton extends from northern Australia to New Guinea. Elsewhere, *L. javanicum* Blume naturally occurs in South East Asia and *L. recurvum* Hook.f. is endemic to Mt Kinabalu in Borneo.

Among species, plant height, growth habit, leaf and flower characteristics vary greatly. Most leptospermums flower during spring and summer, when they become smothered in white, greenish-white, cream, pink, red or purplish coloured blooms according to species. Because of this variation,

many Australian species and cultivars make excellent garden subjects. Some are well-recognised and widely cultivated around the world, but others are scarcely known and deserve wider planting.

Although most species are too tender for cultivation in countries with harsh winters, several are naturally adapted to cooler, montane regions in the wild (e.g., species from south-eastern Australia and Tasmania), making them relatively hardy in cultivation. Some of these hardier leptospermums include: *L. arachnoides* Gaertn., *L. argenteum* Joy Thomps., *L. brachyandrum* (F.Muell.) Druce, *L. continentale* Joy Thomps., *L. coriaceum* (F.Muell. ex Miq.) Cheel, *L. epacridoideum* Cheel, *L. glaucescens* Schauer, *L. grandiflorum* Lodd., *L. grandifolium* Sm., *L. juniperinum* Sm., *L. lanigerum* (Aiton) Sm., *L. macrocarpum* (Maiden & Betche) Joy Thomps., *L. micromyrtus* Miq., *L. minutifolium* (Benth.) C.T.White, *L. myrsinoides* Schltdl., *L. myrtifolium* Sieber ex DC., *L. nitidum* Hook.f., *L. obovatum* Sweet, *L. rotundifolium* (Maiden & Betche) F.A.Rodway, *L. rupestre* Hook.f., *L. sphaerocarpum* Cheel, *L. squarrosum* Gaertn., *L. trinervium* (Sm.) Joy Thomps., *L. turbinatum* Joy Thomps., and *L. variabile* Joy Thomps.

A major taxonomic revision of the genus was published by Australian botanist Dr Joy Thompson in 1989. Leptospermums that are worthy of cultivation are discussed in the Australian gardening books of Wrigley and Fagg (1996, 2012), Greig (1987, 1996), Elliot and Jones (1993) and listed by Hibbert (2004). Those grown in New Zealand are listed by Gaddum (1997, 1999a, 1999b, 2001); those grown in the UK are listed in the *Plant Finder* by Huxley et al.

(1992), Griffiths (1994), Lord (1999, and previous years), Philip (2008, and previous years), Philip et al. (2012, and previous years), and in the *RHS Plant Finder* online (<http://apps.rhs.org.uk/rhsplantfinder/index.asp>).

These key references are generally up-to-date. However, background information on cultivar origins can be lacking and the correct species and cultivar names for several leptospermums have become confused. Misidentified plants and redundant or misspelt names are frequently perpetuated, despite the availability of current names. These problems are shared with many plant groups that have a long horticultural history.

This article discusses the nomenclature, taxonomy and horticultural qualities of noteworthy Australian leptospermums. Emphasis is placed on species² suitable for cultivation in cooler climates. Part One documents species and the origins of cultivars selected from them, and attempts to resolve, or at least highlight, some of the issues surrounding their names. Part Two will discuss the interspecific hybrids (crosses between *Leptospermum* species) that have arisen in the wild and from cultivation. Acknowledgements and references will be included at the end of the second part.

This article follows my previous reviews on selections of the New Zealand species, *L. scoparium* J.R.Forst. & G.Forst., discovered from the wild and those raised in cultivation. These reviews were originally published in *The New Plantsman* (Dawson, 1997a, 1997b) and updated in *The New Zealand Garden Journal* (Dawson, 2009, 2010).

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² I have mainly followed the leaf and flower measurements of Thompson (1989). However, these dimensions can be larger in cultivated plant material, and Thompson’s measurements were taken from dried herbarium material collected from wild specimens.

Australian *Leptospermum scoparium*

In contrast to a colourful Australian flora, many New Zealand native plants have rather dull flowers that are often white or green. It is not surprising then that plant collectors have actively propagated flower variants from New Zealand populations of typically white-flowered *L. scoparium* J.R.Forst. & G.Forst., where it is commonly called mānuka. As documented previously (Dawson, 1997a, 1997b, 2009, 2010), these New Zealand variants have provided genes for cultivars with white, pink and red flowers that are single or double.

Leptospermum scoparium is also native to Australia³, and occurs naturally in New South Wales, Victoria and Tasmania (Thompson, 1989). Flowers of Australian *L. scoparium* are almost always white (8–12 mm in diameter) with pale-pink flowered forms being very rare (Elliot and Jones, 1993). Few cultivars of this species have been selected from Australia, and those that have were chosen mainly on the basis of vegetative rather than floral characters.



Fig. 1 *Leptospermum scoparium* 'Asbestos Range' growing at Bywong Nursery, New South Wales, Australia. Photo: Peter Ollerenshaw.

An exception is provided by a pink-flowered form collected from northern Tasmania. *L. scoparium* 'Asbestos Range' (Fig. 1) is named after Asbestos Range (Narawntapu National Park) from which the plant was obtained. This selection has dark receptacles, surrounded by a ring of reddish filaments, and a pink blush at the base of the petals. *L. 'Asbestos Range'* was collected in 1990 by Peter

Ollerenshaw (pers. comm.) of Bywong Nursery (Bungendore, New South Wales). He has used it as a parent for some of the crosses in his breeding programme (Ollerenshaw, 1996; see Part Two). *L. 'Asbestos Range'* is not commercially available.

Another selection collected from Tasmania, but sold in the UK, is *L. scoparium* 'Zeehan'. Seed was collected in the vicinity of Zeehan in 1990, and grown on by Graham Hutchins of County Park Nursery (Hornchurch, Essex). This selection has white flowers, an upright growth habit, and is claimed to be stronger growing and with shaggier bark than New Zealand *L. scoparium* (Graham Hutchins, pers. comm.).

Although collected and named by him, Graham Hutchins no longer grows an older Tasmanian selection, *L. scoparium* 'Tasman'. Hutchins raised this selection from seed he collected from Tarraleah in 1985 (County Park Nursery information sheet 17–19, 1989). Like many of Hutchins' wild-collected plants, *L. 'Tasman'* and *L. 'Zeehan'* are not significantly different from the usual range of variation found in the wild.

Although Thompson (1989) did not recognise any varieties or subspecies of *L. scoparium*, var. *eximium* B.L.Burt. is very distinctive. Warwick Harris (pers. comm.) has seen populations of this variety in the wild and also adjacent populations of "typical" *L. scoparium* with which it introgresses. This coastal, south-east Tasmanian variety was first introduced into England in the 1930s, from seed collected near Port Arthur (Elliot and Jones, 1993).

Peter Ollerenshaw has successfully crossed *L. scoparium* var. *eximium* with *L. scoparium* 'Nanum Rubrum'. As currently circumscribed this is a cross within the same species. However, the parents differ markedly in form and provenance; variety *eximium* is from Tasmania and has a pendulous habit, whereas *L. 'Nanum Rubrum'*⁴ (Fig. 2) is a dwarf cultivar derived from New Zealand

L. scoparium. Ollerenshaw named one selection of this cross *L. scoparium* 'Freya' (*Plant Varieties Journal*, 1998, Vol. 11, No. 4). *L. scoparium* 'Freya' (Fig. 3) is a relatively low-growing shrub (1–1.5 m tall) with green leaves that produces abundant, soft-pink flowers.



Fig. 2 Pots of the dwarf, bronze-leaved *Leptospermum scoparium* 'Nanum Rubrum' for sale at the E. F. Jenkin & Sons Nursery, Cranbourne South, Victoria, Australia. This is a selection from New Zealand *L. scoparium*. Photo: Murray Dawson.



Fig. 3 *Leptospermum scoparium* 'Freya', a hybrid raised at Bywong Nursery, Australia. Photo: Peter Ollerenshaw.

Although Elliot and Jones (1993) claimed *Leptospermum* 'Horizontalis' to be a selection of *L. scoparium* collected from western Victoria, Wrigley and Fagg (1996) state that it is probably a cultivar of *L. continentale* Joy Thomps. It has also been sold as *L. 'Portlandii'* and *L. juniperinum* 'Horizontalis'. *L. 'Horizontalis'* is a cold-hardy and pendulous selection. Material that I have examined has a dense growth habit and very prickly leaves making them good amenity landscape plants.

Leptospermum grandiflorum and *L. grandifolium*

Both *L. grandiflorum* Lodd. and *L. grandifolium* Sm. have a long history of cultivation, and have at times

³ According to the New Zealand Plant Conservation Network (www.nzpcn.org.nz) webpage on *Leptospermum scoparium* var. *scoparium*, most Australian forms of *L. scoparium* do not match the range seen in New Zealand. However, plants from Tasmania are very similar to, if not identical with some South Island forms. Further study using DNA sequencing is underway to resolve the status of *L. scoparium* forms both in New Zealand and in Australia.

⁴ *Leptospermum scoparium* 'Nanum Rubrum' is a name used in Australia for a dwarf cultivar with green-red foliage and red single flowers. I suspect that this selection may have been renamed in Australia, and could correspond with an older cultivar such as the English-raised *L. 'Boscawenii Minor'* or *L. 'Nichollsii Nanum'*, or perhaps one of Duncan & Davies' dwarf selections such as *L. 'Huia'* or *L. 'Ruru'* raised in New Zealand; critical comparisons are needed.

been confused due to the similarity of their names. *L. grandiflorum* (Fig. 4) is named after its moderately large flowers (20–30 mm in diameter), whereas *L. grandifolium* (Fig. 5) is named after its distinctive long leaves (up to 35 mm in length; Thompson, 1989).



Fig. 4 Botanical illustration of *Leptospermum grandiflorum* in Loddiges, C., *The Botanical Cabinet*, Vol. 6, Tab. 514 (1827). Image courtesy Missouri Botanical Garden, www.botanicus.org.



Fig. 5 Botanical illustration of *Leptospermum grandifolium* in Loddiges, C., *The Botanical Cabinet*, Vol. 8, Tab. 701 (1827). Image courtesy Missouri Botanical Garden, www.botanicus.org.

Leptospermum grandiflorum is an attractive and hardy species with white, sometimes pale-pink flowers and grey-green leaves. It is sometimes known as the showy tea-tree due to its large flowers and as the autumn

tea-tree because it is said to be late flowering. This species is native to eastern Tasmania where it is relatively common. *L. grandiflorum* is cultivated in Australia and New Zealand, and was introduced into England sometime before 1821. This species is sometimes grown under its earlier names, *L. nobile* F.Muell. ex Miq. and *L. rodwayanum* Summerh. & H.F.Comber.

Leptospermum grandifolium is also known as the mountain tea-tree because it is naturally found on the tablelands of New South Wales and the highlands of Victoria. This species has white flowers (12–20 mm in diameter) and leaves that are green and glossy on the upper surface and glabrous or densely hairy underneath. *L. grandifolium* is not as widely cultivated as *L. grandiflorum*, and Elliot and Jones (1993) state that it was possibly introduced into England in 1810 incorrectly under the name of the other species (*L. grandiflorum*).

***Leptospermum laevigatum* (coast tea-tree)**

The common name for *L. laevigatum* (Gaertn.) F.Muell. is coast (or coastal) tea-tree, because it naturally occurs on coastal sand dunes and cliffs in New South Wales, Victoria, and Tasmania (Thompson, 1989). It is a widespread and adaptable species with greyish-green foliage and white flowers of moderate size (15–20 mm in diameter). In Australia, the vigorous nature of *L. laevigatum* has allowed it to escape and spread from landscaping, coastal plantings, and following its use for revegetation after sand-mining. It has also naturalised in parts of New Zealand, South Africa, and the USA, particularly in warmer areas such as California where it has been planted to stabilise coastal sand dunes. However, *L. laevigatum* is not as troublesome when grown in cooler regions of the UK, where it has been cultivated since the late 1700s (then under the name *Fabricia laevigata* Gaertn.; Fig. 6).

Population samples of *L. laevigatum* grown at Landcare Research (Lincoln, New Zealand) were severely damaged by cold and died out within a few years. In contrast, plants of the similar and closely related *L. coriaceum* (F.Muell. ex Miq.) Cheel (the green tea-tree) have thrived since they were planted in the early 1990s (Warwick

Harris, pers. comm.). *L. coriaceum* is widespread in South Australia, New South Wales and Victoria, and has previously been known as *L. laevigatum* var. *minus* Benth.



Fig. 6 Botanical illustration of *Leptospermum laevigatum* (then as *Fabricia laevigata*) in Curtis's *Botanical Magazine*, London, Vol. 32, Tab. 1304 (1810). Image courtesy Missouri Botanical Garden, www.botanicus.org.

Leptospermum laevigatum 'Fleming' is one of two leptospermums commercially available with variegated foliage (the other is *L. juniperinum* 'Little Lemon'). *L. laevigatum* 'Fleming' has slightly smaller leaves than is typical for the species, an attractive cream and green variegation, and pink-coloured new growth. The cultivar originated in Australia at Facey's Nursery (Cranbourne, Victoria). Rex Trimble raised it in 1971 as a chance seedling amongst a batch of 2000 other seedlings. In 1977, Facey's Nursery announced the release of this cultivar for sale in *Your Garden* (at the time, Australia's widest circulating gardening magazine). They released it under the name *L.* 'Fleming', but on the cultivar registration form they proposed the name *L.* 'Raelene'. As the name *L.* 'Fleming' was validly published in *Your Garden* (Anonymous, 1977), that name should take priority. A note outlining this matter was included by the registrar (Lawrie Metcalf) on a copy of the cultivar registration form held by the RNZIH. Elliot and Jones (1993) point out that *L.* 'Fleming' is the name by which this selection has become better known.

Another cultivar of *L. laevigatum* is *L. 'Compactum'*. As the name suggests, this selection has a dense growth habit, seldom exceeding 1 m in height. *L. 'Compactum'* is available in the UK and the USA. Elliot and Jones (1993) state that *L. 'Compactum'* is sometimes grown in the USA as *L. 'Reevesii'*. Indeed, the USA nursery catalogues that I have seen use the name *L. 'Reevesii'* more frequently than *L. 'Compactum'*. Each name was listed separately in the *Sunset Western Garden Book* (1995, 6th ed.), and both names were combined as *L. laevigatum 'Reevesii Compacta'* in the Suncrest Nurseries Catalogue (*A guide to ornamental plants for coastal California with cultural notes*, M. Nevin Smith, 1996).

***Leptospermum lanigerum* (woolly tea-tree)**

Leptospermum lanigerum (Aiton) Sm. (Fig. 7) is commonly called the woolly tea-tree, after the dense hairs that cover the young stems and leaves. This variable species has grey-green leaves and white flowers (about 15 mm in diameter). In the wild, *L. lanigerum* is widespread in damp areas of South Australia, New South Wales, Victoria, and Tasmania. It was first cultivated in England in 1774, from seed collected in Tasmania. Today, there are several forms grown in the UK that have been ascribed to this species, and a few are surrounded by taxonomic and nomenclatural confusion.

Leptospermum lanigerum 'Wellington' was raised and named by Graham Hutchins in 1985, from seed collected from Mount Wellington, Tasmania (County Park Nursery information sheet 17–19, 1989; Graham Hutchins, pers. comm.). In the same year, Hutchins obtained plants from a New Zealand nursery labelled "*L. citratum*". Realising that this name was not currently used by botanists, Hutchins re-identified and distributed material in the UK as *L. lanigerum* 'Citratum'. In this way, Hutchins differentiated between the two selections he sold. However, his approach also created difficulties. Botanically, *L. citratum* Challinor, Cheel & A.R.Penfold is an early synonym for *L. petersonii* F.M.Bailey⁵,

another widely cultivated species (Thompson, 1989; followed by Elliot and Jones, 1993; Griffiths, 1994; and Lord, e.g., 1999). Horticulturally, the name *L. citratum* has been used rather loosely for leptospermums with lemon-scented foliage, such as *L. petersonii* (sometimes incorrectly spelt "*L. petersenii*") and *L. liversidgei* R.T.Baker & H.G.Sm. The name *L. lanigerum* 'Citratum' was listed as not validated in Lord (1995) and redirects to *L. petersonii* in the *RHS Plant Finder* online. I am uncertain of the correct species to which this cultivar belongs, and the Latinised cultivar usage of *L. 'Citratum'* may not be permissible under the *International Code of Nomenclature for Cultivated Plants* (ICNCP).



Fig. 7 Botanical illustration of *Leptospermum lanigerum* in Loddiges, C., *The Botanical Cabinet*, Vol. 12, Tab. 1192 (1827). Image courtesy Missouri Botanical Garden, www.botanicus.org.

A further selection of *L. lanigerum* is grown in Australia. *L. 'Pendulous'* originated from seed probably collected in Tasmania. As the name suggests, it has arching or pendulous branches (Elliot and Jones, 1993).

***Leptospermum liversidgei* (lemon-scented tea-tree, olive tea-tree)**

Leptospermum liversidgei R.T.Baker & H.G.Sm. is a compact and upright shrub that grows to 2(–4) m high. Its dense, bright green and narrow leaves are strongly lemon-scented. *L. liversidgei* has small flowers

(typically 8–12 mm in diameter) that are usually white and rarely pink. In the wild, it is found in north-eastern New South Wales and south-east Queensland. The species is of limited availability in the UK (*RHS Plant Finder* online) and may tolerate moderate frost but is probably better suited to warmer climates.

In Australia, the cultivar *L. liversidgei* 'Mozzie Blocker' has Australian Plant Breeders Rights protection (PBR to Austraflo as 'BY11'; accepted 4 November 1997). *L. 'Mozzie Blocker'* has soft pink coloured flowers that (from the PBR documentation) may be larger than typical for the species (13–18 mm diameter). It was selected from two generations of seed grown from open pollinated plants by William (Bill) Molyneux, of Dixons Creek, Victoria. *L. 'Mozzie Blocker'* was selected primarily for higher levels of citronellal, the main component that gives citronella oil its distinctive lemon scent. Citronellal is known to be an effective mosquito repellent. "Mozzie Blocker"[™] is a most effective marketing name and has ensured the widespread success of this cultivar. It was first sold in Australia in September 1997 and is also available in New Zealand. Nurseries recommend it for growing in containers on decks, balconies and around pools and outdoor eating areas. However, I do not know how effective in practice any reputed insect-repellent abilities would be.

Leptospermum macrocarpum

Leptospermum macrocarpum (Maiden & Betche) Joy Thomps. is a showy species that deserves to be more widely cultivated. In the wild, it is rather variable and restricted to a small area in the Blue Mountains, New South Wales (Thompson, 1989). This species is named after its large seed capsules of about 20 mm in diameter. Flowers are also large (15–30 mm in diameter), and colour ranges from greenish-white, yellowish, pink, to dark red. Leaves are usually broadly elliptical and up to about 35 mm long. This species has previously been known as *L. lanigerum* var. *macrocarpum* Maiden & Betche.

Similarity of floral and vegetative characters leads me to conclude

⁵ Thompson (1989) recognised two subspecies of *L. petersonii* – var. *petersonii* (often with lemon-scented leaves) and var. *lanceolatum* Joy Thomps. (without a distinct lemon odour). Bean (1992) reinstated *L. amboinense* and transferred *L. petersonii* var. *lanceolatum* into synonymy with it.

that a cultivar known as *L.* 'Green Eye' (Fig. 8A–B) is a selection of *L. macrocarpum*. It is definitely not a selection of *L. rotundifolium* (Maiden & Betche) F.Rodway ex Cheel as claimed in a New Zealand nursery catalogue (Matthews' Nursery Cat., 1990). *L.* 'Green Eye' has greenish-white flowers, coppery coloured foliage (that intensifies during winter months), and a low-growing habit (*New Zealand Gardener*, April 1986). Interestingly, it is one of the few leptospermums that have strongly scented flowers. In some New Zealand nursery catalogues (e.g., Wilsons Nurseries Ltd., Hastings, 1982; Matthews' Nursery, 1990; Blue Mountain Nurseries, 1993), the cultivar name has been corrupted to "Green Ice". These catalogues also use a common name "Tasmanian manuka". This common name is doubly misleading; mānuka is usually reserved for New Zealand *L. scoparium*, and if *L.* 'Green Eye' is a selection of *L. macrocarpum*, it is a species not native to Tasmania.



Fig. 8 *Leptospermum macrocarpum* 'Green Eye' growing at Landcare Research, Lincoln, New Zealand. **A**, young plant with coppery coloured winter foliage. **B**, close-up of flowers. Photos: Murray Dawson.

Leptospermum 'Green Eye' is available in Australia and New Zealand, where it is relatively cold hardy in cultivation. This cultivar is different to the interspecific hybrid raised and distributed in England by Graham Hutchins, who gave his selection the very similar name of *L.* 'Green Eyes' (discussed in

Part Two). Both selections were named after the green receptacle in the centre of each flower.

Leptospermum morrisonii

Leptospermum morrisonii Joy Thomps. is a shrub or small tree native to central coastal and tableland areas of NSW. It has relatively long, narrow, soft and shiny leaves (15–35 mm or more in length), greenish cream or white flowers (12–15 mm in diameter) and corrugated bark. *L. morrisonii* was described as a new species by Joy Thompson in 1989. Several cultivars of it are available with attractive coppery or purple young foliage that contrasts well with the dense, deep-green, older foliage and whitish flowers. However, these cultivars have not always been assigned to the correct species.

Leptospermum morrisonii 'Burgundy' is a cultivar with dark purple foliage. It was found from Falls Creek near Jervis Bay, NSW by Peter Ollerenshaw (pers. comm.) of Bywong Nursery in December 1991. *L.* 'Burgundy' has white flowers and grows to about 3 m tall. It is currently available from several Australian nurseries.

Leptospermum 'Copper Glow' is named after its shiny copper-bronze coloured foliage produced on new shoot growth (*Australian Plants*, March 1992; Cornford, 1996). This selection was brought into cultivation by Australian horticulturist Don Ellison, who harvested seed from one isolated stand in the wild, and distributed it to various seed merchants. *L.* 'Copper Glow' grows reasonably true-to-type when propagated by seed (Ellison, 1999; Don Ellison, pers. comm.)⁶. Some have claimed *L.* 'Copper Glow' to be a selection of *L. polygalifolium* Salisb. (syn. *L. flavescens* Sm.) (e.g., Cornford, 1996). Warwick Harris also stated this (Harris, 1993a), but his re-examination of New Zealand plants led him to suggest that *L.* 'Copper Glow' may instead belong to *L. morrisonii* (Warwick Harris, pers. comm.). This view is supported by its listing in the Australian Plant Name Index as *L. morrisonii* 'Copperglow' (but note the orthographic variation of the cultivar name). Although perhaps not as widely cultivated now, *L.* 'Copper Glow' is best known in Australia.

A selection of similar name and appearance is *L.* 'Copper Sheen'. This is the most common Australian *Leptospermum* grown in New Zealand, popular for its rapid growth, bronze coloured foliage (Fig. 9A) that contrasts well with the creamy-green/white flowers, and (like several other Australian species and cultivars) resistance to the scale insect pest that causes mānuka blight in Australasia (e.g., Derraik, 2008). Some New Zealand nurserymen suggest that *L.* 'Copper Sheen' is slightly more frost tender than most *L. scoparium* cultivars, although 5 m tall mature plants that I know of (cultivated in Canterbury, South Island; e.g., Fig. 9B–C) have shown little, if any, sign of frost damage since they were planted in the early 1990s. *L.* 'Copper Sheen' was raised in New Zealand by the late Mike Geenty (formerly of Hamilton City Council). In 1976, seed labelled "*L. nitidum*" was imported from the Royal Botanic Gardens, Sydney, and germinated at the Hamilton City Council Nurseries. Seedlings were relatively uniform except one that had dark foliage. This plant was grown on for evaluation and first flowered in 1980. Cuttings were initially distributed in New Zealand, to Richard Ware (Plant Production, Napier) and Noelyn Parr (formerly of Lyndale Nurseries, Auckland). Ware used the cultivar name "Pacific Flame", but Parr named the same clone "Copper Sheen". Agreement between the raiser and growers was then reached that the only cultivar name to be used would be *L. nitidum* 'Copper Sheen'⁷ (Geenty, 1992). This cultivar is registered with the Royal New Zealand Institute of Horticulture (RNZIH). However, it clearly is not derived from *L. nitidum* Hook.f. as stated on the RNZIH cultivar registration form. It has been suggested that this New Zealand raised cultivar belongs to *L. polygalifolium* Salisb. var. *polygalifolium* (Edwards, 1992; Harris, 1993a), and several nurseries in New Zealand are currently selling plants under the name *L. macrocarpum* 'Copper Sheen'. However, I am of the firm opinion that it is a selection of the closely related *L. morrisonii* – the description in Thompson (1989) is a better fit with the plants that I have examined.

⁶ Unlike more derived cultivars of *Leptospermum* that should be maintained only through vegetative (usually cutting) propagation.

⁷ The names *L.* 'Coppershine' (e.g., *New Zealand Gardener*, April 1986 & April 1988) and *L.* 'Copper Shine' (e.g., Matthews' Nurseries Catalogue, 1989, 1990, 1992, 1993) are orthographic corruptions of *L.* 'Copper Sheen'.

To add to the confusion, there appear to be two separate selections in Australia and New Zealand that share the cultivar name “Copper Sheen”. The Australian Cultivar Registration Authority hold records of a herbarium specimen labelled *L. nitidum* ‘Copper Sheen’ dated 4 May 1966 (received from Melbourne), and also cite a listing in an Austrafloora Nursery Catalogue dated 1978. These records predate the release and naming of the New Zealand cultivar. Elliot and Jones (1993) state that the cultivar formerly known in Australia as *L. nitidum* ‘Copper Sheen’ is a selection of *L. macrocarpum* (Maiden & Betche) Joy Thomps. but Wrigley and Fagg (1996) consider it to be a selection of *L. turbinatum*.



Fig. 9 *Leptospermum morrisonii* ‘Copper Sheen’, a New Zealand raised cultivar. **A**, young plant growing at Landcare Research, Lincoln, New Zealand, showing intense bronze-coloured foliage. Photo: Robert Lamberts. **B**, mature tree growing at the Canterbury Agriculture and Science Centre, Lincoln, New Zealand. **C**, close-up of flowers, same plant as Fig. 9B. Photos: Murray Dawson.

Another selection of *L. morrisonii* is *L.* ‘White Opal’. It has been available from the Australian nursery trade since 2006 or earlier but I do not know of its origins.

Other tea-trees with coppery or dark coloured foliage include *L. macrocarpum* ‘Green Eye’, *L. wooroonooran* F.M.Bailey (a rare species confined to mountains in North East Queensland and occasionally cultivated), and several New Zealand *L. scoparium* cultivars (e.g., *L.* ‘Nanum Rubra’, *L.* ‘Nichollsii Nanum’, *L.* ‘Red Damask’ and *L.* ‘Red Falls’).

***Leptospermum myrtifolium* (myrtle tea-tree)**

The correct identity and name of the taxon widely cultivated in the UK as “*L. cunninghamii*” has been problematic. In recent years, it has been variously placed under *L. lanigerum* and *L. myrtifolium* by different authors. Thompson (1989) listed *L. cunninghamii* S.Schauer as an early synonym of *L. myrtifolium* Sieber ex DC. In support, Elliot and Jones (1993) stated that *L. myrtifolium* was introduced into England in 1824 (also as *L. thymifolium* Hoffmanns.) and is currently often grown in the UK as *L. cunninghamii*. On the other hand, Bean (1973) tentatively included “*L. cunninghamii*” under *L. lanigerum*, but noted that it differed from other cultivated material of *L. lanigerum* that was more typical of the species. Significantly, Bean (1973) commented that “it is difficult for the non-botanist to believe that these two leptospermums belong to the same species”. To distinguish between them, and to provide a link with the earlier name, *L. lanigerum* ‘Cunninghamii’ has been used in the UK (e.g., the *Plant Finder*, various years). However, this Latinised cultivar usage may not be permissible under the ICNCP (similar to the situation for *L. lanigerum* ‘Citratum’). If it is justified at all, the cultivar epithet could perhaps be shortened from “Cunninghamii” to “Cunningham”.

To further complicate matters, the *Hillier Manual of Trees & Shrubs* (6th ed., 1991) stated that *L. lanigerum* ‘Silver Sheen’ is a cultivar selected from material previously grown as *L. cunninghamii*. Lord (1993, 1994) and Griffiths (1994) differentiated between *L. cunninghamii sensu* S.Schauer and *L. cunninghamii*

used in the horticultural sense, treating *L. cunninghamii* (hort.) as a synonym of *L. lanigerum* ‘Silver Sheen’. More recent editions of the *RHS Plant Finder* (from Lord, 1995) list *L.* ‘Silver Sheen’ as a cultivar of *L. myrtifolium*, and treat the name *L. lanigerum* ‘Cunninghamii’ as a synonym of *L. myrtifolium* with no cultivar status.

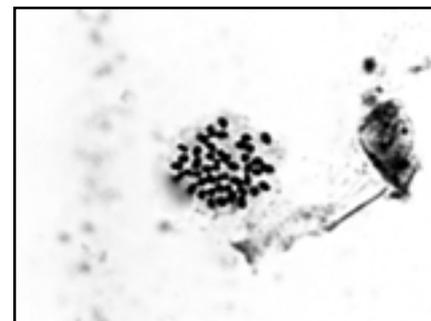


Fig. 10 Chromosomes of *Leptospermum cunninghamii* (hort.), $2n = 44$. Photomicrograph: Murray Dawson.

Representative material that I have examined shows that *L.* ‘Cunninghamii’ and *L.* ‘Silver Sheen’ are different from one another, and that neither is related to *L. lanigerum*. I agree with Elliot and Jones (1993), who consider that material grown in the UK as “*L. cunninghamii*” should correctly be referred to *L. myrtifolium*. *L. myrtifolium* has white flowers (7–11 mm in diameter) and grey-green leaves, and grows wild in New South Wales and Victoria. *L. myrtifolium* is one of the few tetraploid species, with $2n = 44$ chromosomes (Dawson, 1987, 1995). Significantly, my previously unpublished chromosome count of *L. cunninghamii* (hort.) is also tetraploid ($2n = 44$, Fig. 10), providing further evidence that the two taxa are coextensive (i.e., they contain the same members and no others). I am less certain of the true identity of *L.* ‘Silver Sheen’ – its foliage resembles *L. trinervium* (Sm.) Joy Thomps., a species that has been in cultivation in England since 1795 (under various names), or it is perhaps of hybrid origin.

***Leptospermum nitidum* (shining tea-tree) and *L. turbinatum* (Grampians tea-tree)**

Leptospermum nitidum Hook.f. is endemic to Tasmania. It is a compact shrub that can grow to 2 m tall. It has narrow leaves that are up to 20 mm long and white flowers (usually 15 mm in diameter) with green centres.

Leptospermum turbinatum Joy Thomps. is a similar species and often confused with *L. nitidum*. It has been in cultivation for many years under the name *L. nitidum* (Fig. 11A–C) but separated as a new species by Thompson (1989). *L. turbinatum* can be distinguished by the conical bases to the fruit capsules (instead of the broadly rounded or flat bases in *L. nitidum*). *L. turbinatum* is a spreading shrub that grows 1–2 m tall and 1.5–2.5 m across with white flowers (25 mm in diameter). It is called the Grampians tea-tree because it is endemic to the Grampians, Victoria. Both *L. nitidum* and a *L. turbinatum* can be grown in heavy shade and are relatively cold tolerant.



Fig. 11 A low growing *Leptospermum* cultivated for many years at the Christchurch Botanic Gardens. It is labelled as "*L. nitidum*", but is probably instead *L. turbinatum*. **A**, mature plant. **B**, flowers. **C**, close-up of flowers. Photos: Murray Dawson.

Due to confusion of species names, the cultivar often known as *L. nitidum* 'Flat Rock' in the US should apparently be referred to as a *L. turbinatum* selection. *L.* 'Flat Rock' was selected from the UCSC Arboretum, Santa Cruz. The cultivar grown in the UK as *L. nitidum* 'Cradle' needs to be critically examined to see if it too belongs to *L. turbinatum*.

As mentioned, cultivars originally sold in Australia and New Zealand as *L. nitidum* 'Copper Sheen' belong to other species.

Leptospermum polygalifolium
Several outstanding and floriferous cultivars have been traditionally assigned to *L. flavescens* Sm., including *L.* 'Cardwell', *L.* 'Kemp's Aldgate', *L.* 'Pacific Beauty' (at times sold in Australia as *L. flavescens* 'Prostrate'), *L.* 'Pacific Flame', *L.* 'Prolific Pearl', *L.* 'Purpureum', and *L.* 'Tully Falls'. Most of these selections were raised in Australia, and some, such as *L.* 'Pacific Beauty' (Fig. 12), are probably too tender for general cultivation in cooler climates such as those in the UK or southern New Zealand. Brief descriptions for some of these cultivars are provided by Greig (1987) and Elliot and Jones (1993).



Fig. 12 *Leptospermum polygalifolium* subsp. *tropicum* 'Pacific Beauty' growing at Landcare Research, Lincoln, New Zealand. Photo: Robert Lamberts.



Fig. 13 Botanical illustration of *Leptospermum polygalifolium* (then as *L. flavescens*) in *Curtis's Botanical Magazine*, London, Vol. 53, Tab. 2695, 1826. Image courtesy Missouri Botanical Garden, www.botanicus.org.

Leptospermum flavescens is a name still commonly used by the nursery industry, although Thompson (1989) subsumed *L. flavescens* (Fig. 13)

into synonymy with *L. polygalifolium* Salisb., within which she recognised six subspecies. Her treatment may not adequately reflect the variation in this group, and creates difficulties when attempting to assign subspecific ranks to some of the cultivars. Perhaps it is best to follow the advice of Elliot and Jones (1993), who state that "Subsequent research has resolved that although some of these subspecies were distinctive there was strong evidence of intergradation. Therefore it is recommended that until research clarifies this complex, the *status quo* of before 1989 should be maintained."

As circumscribed by Thompson (1989), *L. polygalifolium* is widespread and common, occurring from Queensland to New South Wales. It was apparently introduced into England in 1800 or earlier (as *L. porophyllum* Cav.).

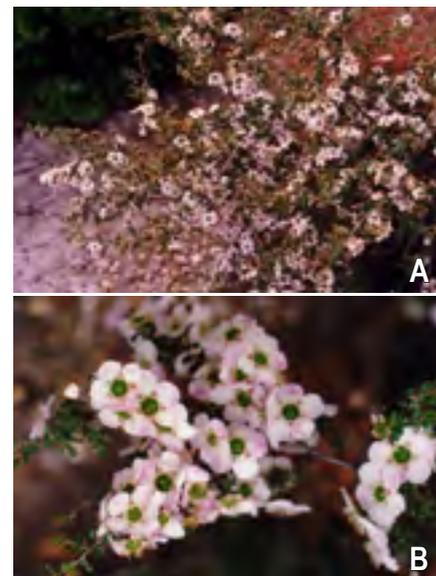


Fig. 14 *Leptospermum rotundifolium* cultivated at Landcare Research, Lincoln, New Zealand. **A**, plant in flower. **B**, close-up of flowers. Photos: Murray Dawson.

***Leptospermum rotundifolium* (round leaf tea-tree)**

Leptospermum rotundifolium (Maiden & Betche) F.Rodway ex Cheel is a highly ornamental and distinctive species (Fig. 14A–B). The orbicular leaves are responsible for its common name, the round leaf tea-tree. This species is well suited for cut flowers, as its vase life is relatively long for a *Leptospermum* (Bicknell, 1995). It also has one of the largest flower sizes (20–50 mm in diameter), with colours that range from white, cream, pink, to purplish-pink. The purple flower colouration is unique

in *Leptospermum* and most intense in the cultivars *L.* 'Jervis Bay' and *L.* 'Manning's Choice'. I know of three other cultivars in this species, *L.* 'Julie Ann', *L.* 'Lavender Queen' and *L.* 'Williamsii'. Now recognised at the species rank, *L. rotundifolium* was formerly considered a variety of *L. scoparium*. Consequently, cultivars have at times been listed under *L. scoparium* var. *rotundifolium* Maiden & Betche.

As the name implies, *L.* 'Jervis Bay' originated from that locality in New South Wales, the coastal part of the range for *L. rotundifolium*. This selection has purplish-pink flowers (about 20 mm in diameter) and an upright habit that attains 3 m in height. The selection is typical of wild material from Jervis Bay (Peter Ollerenshaw, pers. comm.), and has been grown in the UK as "*L. scoparium* Jervis Bay form" (e.g., the *Plant Finder*, 1990, 1995).

Leptospermum rotundifolium 'Manning's Choice' may have even deeper purplish flowers. It arose from the former Manning's Heather Farm, near Santa Rosa, California and appears to be a relatively recent selection available from perhaps the mid 1990s. This outstanding cultivar does not seem to be currently available outside of the US.

Leptospermum rotundifolium 'Julie Ann' (sometimes misspelt *L.* 'Julie Anne') was brought into cultivation in 1976 by a Mr E. Demuth (of Albion Park Rail, New South Wales), from a prostrate population growing at Beecroft Peninsula, near Jervis Bay. This cultivar has pale-mauve flowers (about 20 mm in diameter) and a prostrate growth habit of less than 300 mm tall and up to 2 m across. It was registered with the RNZIH under the name "*L. scoparium* var. *rotundifolium* 'Julie Anne'". *L. rotundifolium* 'Julie Ann' has a similar cultivar name to the New Zealand selection *L. scoparium* 'Julianne' (Dawson, 1997a, 2009).

Leptospermum 'Lavender Queen' and *L.* 'Williamsii' are historical cultivars of *L. rotundifolium*. *L.* 'Lavender Queen' is occasionally still found in cultivation, although there may now be several clones sold under this name. These plants are named after their pale-pink flowers (30–50 mm

or more in diameter) that have a lavender blush. *L.* 'Lavender Queen' has a spreading habit and grows to 1–2 m across and about 1.5 m tall (Harrison, 1974; Elliot and Jones, 1993; Stewart, 1999). From the descriptions available, *L.* 'Williamsii' was said to have large pink flowers and to attain 1–2 m in height. It is apparently no longer available under that name.

There is good potential for making further selections within *L. rotundifolium*. The species is quite variable and occurs in a range of coastal and inland tableland habitats in New South Wales. Because of its unique flower colour, *L. rotundifolium* is an important parent in hybridisation programmes (Part Two).

Leptospermum rupestre

Leptospermum rupestre Hook.f. is probably the hardiest of all tea-trees, and plants can survive in the open for many years in gardens throughout the UK (Fig. 15). In the wild, *L. rupestre* naturally occurs on the mountain tops of Tasmania, where it is widespread among boulders in exposed places (Thompson, 1989). When tested, this species was found to be as frost resistant as the most hardy New Zealand *L. scoparium* populations, and has better summer cold tolerance (Greer et al., 1991).



Fig. 15 *Leptospermum rupestre* growing at the Edinburgh Botanic Gardens, Scotland. Photo: Murray Dawson.

Most material available in cultivation have prostrate, compact growth forms, and produce small white flowers (7–10 mm in diameter) that are relatively short-lived (Thompson, 1989; *Commercial Horticulture*, October 1991; Elliot and Jones, 1993). The growth habit of this species is more variable than that generally cultivated, and may attain 2 m tall. I have observed tall-growing plants from Tasmanian seed collections trialled in England (at County Park Nursery) and in New Zealand (at Landcare Research).

L. rupestre has been referred to in cultivation as *L. humifusum* hort. non Cunn. ex S.Schauer, *L. scoparium* 'Prostratum' hort. non Hook.f., and *L.* 'Prostratum'.

Leptospermum sericeum (silver tea-tree)

Leptospermum sericeum Labill. has a restricted distribution in the wild, occurring naturally only to the east of Esperance in Western Australia. This species is commonly called the silver tea-tree, after the silvery-grey coloured new leaves. *L. sericeum* is an outstanding species of great horticultural merit, but unfortunately will not tolerate harsh frosts or heavy clay soils. The flowers are usually pale to bright pink (15–25 mm in diameter) and borne in profusion.

Elliot and Jones (1993) comment that "In the late 1960s and early 1970s some plants of *L. glaucescens* from Tasmania were inadvertently sold as *L. sericeum*." It seems that some of these misidentified plants were imported into the UK. *The Hillier Manual of Trees & Shrubs* (4th ed., 1977; 6th ed., 1991) and Griffiths (1994) listed material cultivated in the UK as being moderately hardy, having bright green leaves and white flowers, and originating from Tasmania, none of which describes true *L. sericeum*.

Leptospermum spectabile

Leptospermum spectabile Joy Thomps. is a distinctive species worthy of cultivation. It was described by Thompson in 1989, and was originally discovered as long ago as 1957 from the Colo River gorge, New South Wales (as recounted by Harris and Percy, 1988). Seed was sent (as *L.* sp. affinity *sphaerocarpum*) to New Zealand from the Royal Botanic Gardens, Sydney in 1983, and sown and planted out at Landcare Research for evaluation. Within this cultivated population, flower colour ranged from pink to deep red, and growth habit also varied. A seedling with deep-red petals and a relatively compact bushy habit was selected, propagated from cuttings, and named *L.* 'Christmas Star' (Harris and Percy, 1988).

Leptospermum spectabile 'Christmas Star' (Fig. 16) has long, narrow, dark-green leaves (20–35 mm in length) and large red flowers (of about 28 mm in diameter). The cultivar is named

after its flowers, which were likened to a Christmas star, with dark-red petals that contrast with a large star-shaped calyx, and stamens that radiate from a broad green receptacle.

L. spectabile 'Christmas Star' is registered with the RNZIH. Before the species was named, it was sold in Australia as *L. 'Colo River'* (*Australian Horticulture*, 1987). *L. spectabile* is relatively new to cultivation and not widely grown. It is rather frost tender and also prone to mānuka blight, limiting its cultivation in cooler regions of some countries. However, it has been a useful parent in crossing programmes by Peter Ollerenshaw in Australia and by Warwick Harris and Murray Dawson at Landcare Research in New Zealand (detailed in Part Two).



Fig. 16 *Leptospermum spectabile* 'Christmas Star', a cultivar raised at Landcare Research, Lincoln, New Zealand. Photo: Murray Dawson.

Leptospermum sphaerocarpum

Leptospermum sphaerocarpum Cheel is a species naturally found in New South Wales. It has greenish-white to pink flowers (10–20 mm in diameter) and is frost and drought tolerant. Although not widely grown, it has been available in the UK (e.g.,

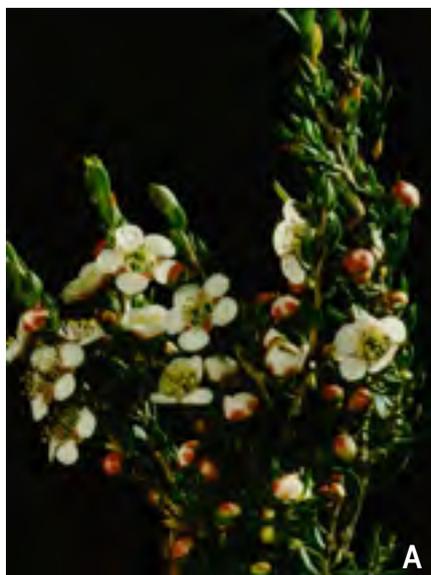


Fig. 17 *Leptospermum variable* 'Karo Crimson Pearl' growing at Landcare Research, Lincoln, New Zealand. **A**, plant in flower. **B**, close-up of flowers and a crimson bud. Photos: Robert Lamberts.

Huxley et al., 1992; Griffiths, 1994).

L. sphaerocarpum is closely related to *L. macrocarpum* and *L. spectabile*.

Leptospermum variable

The origin of *L. variable* 'Karo Crimson Pearl' (Fig. 17A–B) has been documented by Harris (1993a). Seed of a then undescribed species was collected in 1983 from Point Lookout, east of Armidale, New South Wales, and sent to Landcare Research in New Zealand. The species, *L. variable* Joy Thomps., was formally described by Dr Joy Thompson in 1989.

From 21 seedlings grown on, a compact, low-growing plant (attaining about 1.5 m tall) was chosen and named *L. variable* 'Karo Crimson Pearl'. "Karo" is an acronym for "Known and recorded origin" that has been used to identify material selected at Landcare Research. "Crimson Pearl" refers to the red sepals that are prominent on the unopened "pearl-like" flower buds.

Flowers are about 15 mm in diameter, are borne in profusion, and have white petals. The original seed was collected from the southern part of the distribution of that species and at an elevated site. Consequently, the cultivar selected at Lincoln has shown little sign of frost damage over the years. This selection should be grown much more widely as it is cold-hardy, compact, free-flowering and blight-resistant. It had New Zealand Plant Variety Rights (PVR) protection from 1999–2004 and was propagated at one nursery in New Zealand (Elliot's Wholesale Nursery, Amberley, Canterbury; Warwick Harris, pers. comm.). As far as I am aware, it has not been cultivated in the UK (e.g., the *RHS Plant Finder* online).

This concludes discussion of Australian *Leptospermum* species that are grown in cultivation and the cultivars that have been selected from them. Part Two will document hybrids between species and the resultant cultivars from these crosses.