

# The 2011 Banks Memorial Lecture: A history of the cultivars of New Zealand's indigenous plants and the influence of ERMA

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**Fig. 1** Lawrie Metcalf delivering the 2011 Banks Memorial Lecture.  
Photo: Gil Hanly.

Reading the title of this lecture (Fig. 1), you may well ask, just what has New Zealand's Environmental Risk Management Authority got to do with an address on the cultivars of New Zealand's indigenous flora? After all, ERMA is neither a horticultural society nor a botanical organisation. However, the answer to that question will become clearer later on.

Right from the day of 9th October 1769 when James Cook, on his first voyage of discovery to the southern hemisphere, arrived in New Zealand its plants and animals were a source of wonder to Europeans. The scientists that he brought with him, including Joseph Banks and Daniel Solander, were fascinated by New Zealand's vegetation and wildlife and, in particular, they collected numerous herbarium specimens of the plants. Banks and Solander also collected seeds of some plants which they took back to Britain. Those seeds included the so-called North Island kōwhai or *Sophora tetraptera* and, upon arrival back in England, seeds of that species were presented to the Chelsea Physic Garden where they were successfully grown and flowered, possibly against a wall or in a conservatory. Therefore, *S. tetraptera* was very likely the first of our indigenous plants to be cultivated in the northern hemisphere (Fig. 2).



**Fig. 2** An early colour illustration of *Sophora tetraptera*, published in *The Botanical Magazine; or, Flower-Garden Displayed*, by William Curtis. v. 5–6 (1792–1793), No. 167. Image courtesy Missouri Botanical Garden, [www.botanicus.org](http://www.botanicus.org).

Although not generally acknowledged by our Anglo-centric forebears, from the time of Cook onwards the French were also quite active on voyages of exploration in the south Pacific. In fact, the first flora of New Zealand plants was published in 1832 by Achille Richard who published *Essai d'une flore de la Nouvelle Zélande* (Richard, 1832). This flora described 260 species of plants, based on the collections of Dumont D'Urville and René Primevère Lesson, on two of D'Urville's three voyages. It should be noted that Richard's flora was published thirty-two years before Joseph Dalton Hooker published

his *Handbook of the New Zealand flora* (Hooker, 1864). In fact, Thomas Frederic Cheeseman (the well-known New Zealand botanist) noted that Richard's flora was the "first publication dealing with the flora of New Zealand as a whole, and possesses considerable merit, so much so that it is to be regretted that so little use of it has been made by New Zealand botanists" (Cheeseman, 1906). It could be suggested the reason for that was because so few of them probably took the trouble to learn the French language.

By the early 18th century a greater number of explorers and botanists began to visit New Zealand and some naturally commenced collecting seeds to send back to contacts in Britain and Europe. The Cunningham brothers, Allan and Richard, were two who made many discoveries of new species in Northland. The younger brother, Richard Cunningham arrived in 1833 and one notable species he discovered was *Hebe speciosa* growing on the south head of the Hokianga Harbour. It is quite possible he may have collected seeds from those plants because, by the early 1840s, *H. speciosa* was already being cultivated in Britain (Fig. 3). As a result of that introduction, horticulturists such as Isaac Anderson-Henry and John Luscombe, would have been quick to realise the possibilities this handsome new species of *Hebe* would offer them (Heenan, 1993). Therefore, they were probably very keen to use it as a parent for hybridising with other species of *Hebe* (or *Veronica* as it was known then, and according to some molecular botanists, as it should be again).

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**Fig. 3** Colour illustration of *Hebe speciosa* in Curtis's botanical magazine. v. 70 [new ser.: v. 17] (1844), Tab. 4057. Image courtesy Missouri Botanical Garden, www.botanicus.org.

During the mid to late 19th century, botanists such as the Cunninghams, William Colenso, Joseph Dalton Hooker, Julius von Haast, John Buchanan, James Hector, and William Travers together with his son Henry, as well as many others, obviously collected seeds of our native plants. Consignments of such seeds were regularly being sent to overseas correspondents. With a supply of such stimulating plant material arriving from New Zealand, gardeners and botanists in Britain and Europe would, understandably, become excited about their possibilities as garden plants.

As far as is known the first cultivar, or artificial hybrid, of a New Zealand plant was the well-known *Hebe xandersonii* 'Andersonii' (Heenan, 1994a). It was produced in Scotland some time during the 1840s, from a cross made by Isaac Anderson-Henry of Maryfield, Edinburgh. He hybridised "*Veronica* 'Lindleyana'", then believed to be a separate species, with *H. speciosa*. Dr Peter Heenan, of Landcare Research, eventually discovered that *V.* 'Lindleyana' is now known to be a horticultural form of *H. stricta* var. *stricta* (Heenan, 1994a). Just when Isaac Anderson-Henry created his hybrid is not certain but as it was exhibited at one of the Royal

Horticultural Society's shows in 1849, and offered for sale in *The Gardeners' chronicle and agricultural gazette* (1853, p. 274), it may be assumed that he probably created the cross during the mid 1840s.

The next hybrid cultivar known to have been bred, around that time, was what is now known as *Hebe* 'Combe Royal', raised by John Luscombe of Devon. It is similar to *H. xfranciscana* 'Lobelioides' with which it has frequently been confused. John Luscombe used to write for gardening journals under the nom de plume of "A Devonian." He was head gardener for the Combe Royal estate, Kingsbridge in Devon, UK and it was there he bred *H.* 'Combe Royal.' It was raised in 1856 when he crossed *H. elliptica* with *H. speciosa*. While it is now known as *H.* 'Combe Royal', for many years it was incorrectly known as *H.* 'Blue Gem', and then some time later as *H. xfranciscana* 'Blue Gem'. *Hebe* 'Combe Royal' is not its original given name but a more recent name bestowed on it by Dr Heenan, in order to distinguish it from other very closely related cultivars (Heenan, 1994b). Over the years the identities of those cultivars had become quite confused and they became almost impossible to distinguish from each other because of a lack of suitable written descriptions and herbarium material.

It should also be noted the material of *H. elliptica* that John Luscombe used was, in all probability, the Falkland Islands form of *H. elliptica* which was then known as *Veronica decussata*. *Hebe elliptica* was first introduced into cultivation from the Falkland Islands in 1776, by a Dr John Fothergill (Heenan, 2001).

Although they were bred overseas it is probably quite fitting that these first cultivars, known to have been bred from New Zealand native plants, were from our largest genus of flowering plants, *Hebe* (*Veronica*).

While the early French voyagers with their explorations in the south Pacific were not too far behind James Cook, so were the early French horticulturists not very far behind the British in realising the possibilities for hybridising *Hebe*. Victor Lemoine and Sons of Nancy, and Jean Chrétien and Rozain-Boucharlat appear to be

some of the principal breeders, with Victor Lemoine probably producing the greatest number of cultivars. Much of the breeding in France appears to have been carried out during the latter half of the 19th century.

It was not just hebes that were the object of attention by gardeners although, for obvious reasons, hebes were relatively quick and easy to breed which made them popular. Variegated plants seem to excite the attentions of some gardeners and so it was not long before one or two New Zealand plants produced variegated cultivars. The first of them may have been *Coprosma repens* 'Variegata' or variegated taupata which originated in England in 1866. It has leaves margined with creamy-white. The next one to appear seems to have been *C. repens* 'Picturata' (Fig. 4) which also originated in England, in 1876, its leaves having a central blotch of creamy-yellow and yellow-green. Since that time a number of other variations have also appeared in New Zealand. The variegated lemonwood, *Pittosporum eugenioides* 'Variegatum' appeared in William Bull's *Retail list of new, beautiful and rare plants* in 1882. I am not certain when it and the variegated cultivars of *Coprosma repens* arrived in New Zealand but it is amazing just how quickly some of those novelties were exported from Britain to this country. For example, *Hebe xfranciscana* 'Lobelioides' was produced by Isaac Anderson-Henry about or prior to 1862 and there is a record of it being introduced into New Zealand, via Melbourne, Australia in 1868.



**Fig. 4** *Coprosma repens* 'Picturata', a variegated cultivar raised in 1876. Photo: Forest & Kim Starr.

At this point it is interesting to note that while we had all of the New Zealand flora growing in our own backyard so to speak, our local gardeners and horticulturists were quite blasé about the possibilities that New Zealand plants offered for plant breeding. They were obviously too intent upon importing novelties from overseas and later on in hybridising exotic trees and shrubs. Instead, they relied on whatever chance occurrences of native plants, such as variegated branch sports or unusual seedlings, may have come to their notice and there was certainly no attempt at any deliberate plant breeding.

*Hebe xcarnea* 'Carnea' is a case in point. It was named as a species (*Veronica carnea*) in 1881 by John Francis Armstrong. Even then it was commonly cultivated but had never been found as a wild plant. Armstrong suspected it may have been of hybrid origin and, according to one story, it was said to have been discovered in Fiordland. However, there is no doubt of its hybrid origin with *H. speciosa* quite likely being one of its parents.

The lack of deliberate plant breeding continued until 1939 when Dr W.E. Lammerts of California, USA, demonstrated what could be done with some systematic breeding of the New Zealand flora (Lammerts, 1945). He undertook some crossing of our mānuka, *Leptospermum scoparium*, using the cultivar *L.* 'Nichollsii' with a semi-dwarf, double pink cultivar as the other parent. The results of his crossing are now well-known (Fig. 5) and most recently recounted by Dawson (2010). But even then, with such an example, New Zealanders still remained quite indifferent to the possibilities available to them. Granted, World War II had intervened and most people's thoughts were probably far away from such things. Later on an Australian nurseryman by the name of Robert Jenkins and his sons produced a further series of *Leptospermum* cultivars.

In 1972 when my book *The cultivation of New Zealand trees and shrubs* was first published, I issued a challenge in it for some local horticulturist to undertake the hybridising of our

native plants in order to produce some outstanding trees and shrubs (Metcalf, 1972, p. 9). Whether it is true or not, I like to think that my challenge may have inspired Jack Hobbs of Auckland to undertake his work on producing the Wiri series of *Hebe* and *Leptospermum* cultivars during the 1980s and 1990s. Therefore, Jack Hobbs became the first New Zealander to undertake the systematic hybridisation of our native flora and it is to be hoped he may further inspire somebody else to do the same. I should also mention Graeme Platt and Terry Hatch. While not plant breeders in the generally accepted sense of the word, between them they have done a great deal of work in selecting superior horticultural forms of *Metrosideros excelsa*, or pōhutukawa (as documented by Dawson et al., 2010).



**Fig. 5** *Leptospermum scoparium* 'Red Damask', an outstanding cultivar raised by Dr W.E. Lammerts from his deliberate breeding programme. Photo: Murray Dawson.

Over the years, gardening in New Zealand has undergone various phases. Initially many gardens were modelled on what the owners imagined were English gardens. Then during the early part of the 20th century, partly because of the influence of David Tannock, Superintendent of Parks and Reserves, Dunedin, along with a few other enthusiasts, there was a brief resurgence in the cultivation of native plants.

In fact, during the period 1900 to about 1920, the Dunedin Botanic Garden was responsible for the production of a number of cultivars, particularly members of the genus *Brachyglottis*. Just who was responsible for producing those cultivars does not appear to be known but the names of those well-known enthusiasts, Henry Darton and Henry Hart, and possibly even Sir George Fenwick spring to mind as possibilities. Unfortunately, the names of many of those cultivars have been lost or perhaps they were never given any distinguishing names. Also whether they were the result of a deliberate attempt to produce new cultivars or whether it was just somebody casually playing around with the production of *Brachyglottis* seedlings is not known.

One *Brachyglottis* cultivar that today is still relatively common in the nursery trade is *Brachyglottis* (Dunedin Group) 'Crustii' (Fig. 6). It is a presumed hybrid between *B. laxifolia*, *B. greyi* and possibly *B. compacta*. The group epithet was bestowed by the author of Bean's *Trees and shrubs hardy in the British Isles* (Bean, 1980) when the nomenclature of that group of plants was being investigated<sup>2</sup>. Because a number of cultivars of those shrubs originated from a similar parentage in the Dunedin Botanic Garden, it was found that they needed to be recognised as a cultivar-group. Accordingly, the collective epithet (Dunedin Group) was assigned to it.



**Fig. 6** *Brachyglottis* (Dunedin Group) 'Crustii'. Photo: ©Paul Ashford, www.NZPlantPics.com.

<sup>2</sup> The group was originally called *Brachyglottis* Dunedin Hybrids but the *International Code of Nomenclature for Cultivated Plants* (7th ed., p. 10) corrected this to Dunedin Group.

*Brachyglottis* (Dunedin Group) 'Crustii' in all likelihood originated in the Dunedin Botanic Garden possibly just before or after 1900. Its name of "Crustii" had me puzzled for quite some time until, purely by chance, I discovered that it was named after a Councillor Henry Crust who was Chairman of the Reserves Committee from about 1900 until 1904, when he retired from the Council. Although quite easily distinguished, New Zealand nurseries have unfortunately confused *B.* 'Crustii' with the United Kingdom cultivar *B.* 'Sunshine.' *Brachyglottis* 'Crustii' is easily identified by its crinkled or crisped leaf margins whereas the UK-derived *B.* 'Sunshine' has an entire leaf margin without the crisping or crinkling. To the best of my knowledge *B.* 'Sunshine' is not grown in this country, although it is quite similar to the New Zealand cultivar *B.* 'Summer Gold'.

Another *Brachyglottis* cultivar, but not one of the Dunedin Group, is a larger-leaved plant that is very handsome. It is a hybrid between *B. greyi* and *B. repanda* and it probably originated somewhere in Dunedin, perhaps during the early 1930s or even earlier. It apparently never had a cultivar name and so several years ago the late Alastair Turnbull requested that it be given a suitable cultivar epithet. Because of its Dunedin origin the name of "Leith Gold" (after the Water of Leith stream that flows through Dunedin) was bestowed on it. Unfortunately, some nurseries not realising that it was named after a geographical feature decided that it was named after a person by the name of Leith and consequently it appears in some garden centres incorrectly as *B.* 'Leith's Gold'.

During the 1920s and 1930s various horticultural and beautifying societies began to promote different garden competitions. Mostly they revolved around garden displays of bedding plants and other annuals. The Canterbury Horticultural Society and the Christchurch Beautifying Association were particularly active with such competitions, which were even held during World War II. After the war there was a great resurgence in such garden competitions and the displays of bedding plants became even more lavish. The main

disadvantage of such competitions was that once the summer displays were spent the gardens tended to be rather bare. They were also very labour intensive. Therefore, the rules, and the points awarded, were altered in order to encourage the greater use of trees and shrubs. This had some effect but it still did not overcome the problem of gardens that demanded lavish and labour intensive displays of predominantly bedding plants. Also, most of the exotic trees and shrubs used (in Canterbury at least) were principally exotic plants with perhaps an occasional *Hebe* to represent our native flora.

Later in the 1960s a change began to appear as people demanded less labour intensive gardens. Firstly, what became known as "pebble gardening" came into vogue. This was regarded as the ultimate in a labour-saving garden. A sheet of black polythene film would be laid over the planting areas, in order to suppress the growth of weeds, and then the polythene film would be concealed with a layer of largish pebbles or stones. Of course the nurseries were not to be left out and gardeners were then encouraged to plant some supposedly dwarf or slow-growing conifers in amongst the pebbles. Understandably many of those so-called "dwarf" conifers gradually showed their true natures as they slowly but surely assumed larger and larger dimensions. Not much encouragement for native trees and shrubs there.

Over time, the pebble garden morphed into a hybrid style in which many of the conifers were replaced by a mixture of trees and shrubs including perhaps an occasional *Pittosporum*, purple-leaved *Berberis*, maybe an occasional *Hebe ochracea* and of course, not to forget the ubiquitous silver birch.

We then went into the 1970s and 1980s with a whole new style of gardening that came to be known as cottage gardening, or, according to some, the "cottage gardening craze". The nurseries had a hey-day as innumerable herbaceous plants and perennials were freely imported from overseas. Barely a month went by without the latest issues of garden magazines featuring some fabulous newly-imported plant to grace our

gardens. As with the competition gardens filled with bedding plants, so cottage gardens also proved to involve a considerable amount of labour. It is interesting to note that, almost as an adjunct to the cottage garden, the cultivation of grasses, particularly native species, became quite popular. Many nurseries jumped on the band-wagon and began offering a variety of native grasses, not all of which were desirable garden forms.

With regard to the Environmental Risk Management Authority (ERMA New Zealand), and to slightly paraphrase Shakespeare, I do not come to rail against it nor to criticise it, although I must admit that in the past such thoughts may have crossed my mind, but rather, on the contrary, I come to offer some words of praise. Once ERMA was created the importation of new garden plants soon became very difficult, as well as extremely expensive. Suddenly the supply of those new garden plants that had been quite freely imported dried up. For some nursery people it was seemingly the end of their world.

ERMA was established in order to prevent the importation, accidental or otherwise, of new or unwanted organisms. In order to do so ERMA had to institute what appeared to be draconian regulations. Over a period of several years some individuals and organisations had become very concerned about the number of newly naturalised plants that had been appearing around the country, particularly in the Auckland region. In fact, it was estimated that the number of naturalised plant species had begun to exceed the number of indigenous native species.

What many horticulturists failed to realise was that for every positive action there is always an unintended consequence. From the passing of the Hazardous Substances and New Organisms (HSNO) Act (New Zealand Government, 1996), it has taken several years for one of those unintended consequences to become apparent, although slowly and inexorably it has done so.

It is especially true of governments that when a department wishes legislation to be passed to regulate or control a particular occurrence

or problem, there is always an unintended consequence. In the years following the establishment of ERMA, plant nurseries, and others, have started to pay attention to producing new cultivars of our native plants. Initially, there was a great deal of wailing and moaning and gnashing of teeth, from nursery people in particular. No longer could they freely and easily import plants from overseas sources. I know there will be some who probably will not agree but, in hindsight, I think we should be grateful to ERMA for what it has inadvertently done towards encouraging the cultivation of our native flora and making it more popular and acceptable to local gardeners.

Those horticulturists who perhaps were not so loud in their condemnation of the establishment of ERMA, or had a more positive attitude, obviously soon turned their attention to the production of new cultivars of native plants and I feel very much that our gardens are now beginning to reflect the influence of that change in attitude.

A recent inspection of the garden sections, particularly of some of our large chain stores and nurseries, has demonstrated they are now offering for sale, not only greater quantities of New Zealand native plants, but also far more in the way of novelty cultivars of them. Some of those cultivars range over a number of genera from *Coprosma*, *Cordyline*, *Hebe*, *Phormium* and *Pittosporum* to various native grasses and grass-like genera such as *Arthropodium* and *Libertia*.

In spite of that, I feel it is most unfortunate that too many nurseries still concentrate on the selection and production and nauseum of cultivars of *Pittosporum tenuifolium*, and a similar situation applies to cultivars of *Phormium*. I suspect the latter are mainly being produced, factory-style, from production lines of specialist growers in the North Island. Granted, the occasional variegated *Phormium* cultivar can be quite exceptional, but do we wish to see an endless line of so many of the “also-rans” being offered for sale in our garden centres? Our indigenous plants offer a good variety of species and cultivars (not necessarily *Pittosporum* and *Phormium*) that could be useful

garden plants, so why do we not use them? A recent tally of *P. tenuifolium* cultivars indicated there are at least sixty-six cultivars of this species with that number probably increasing by one or two per annum. Surely, the emphasis should be on quality not quantity. If a selection is only just slightly different and does not have sufficient distinguishing qualities to make it a “must have” for the garden, is it not preferable to ignore it rather than add to the number of indifferent variants in a species already overloaded with similar cultivars?

And that brings me to another pet dislike – the accuracy of the naming of some of those cultivars. Our New Zealand nursery people, unfortunately, tend to suffer from a chronic disability similar to that which afflicts some nursery people around the world. It is an inability to spell names correctly or a failure to ascertain just what the correct form of the name should be. An example that I recently noticed belongs to a variegated cultivar of the broadleaf or *Griselinia littoralis*. It was produced by Duncan and Davies in 1978 and, being in the dairy province of Taranaki, and because of its creamy variegation, they gave it the cultivar name of *G. littoralis* ‘Dairy Cream’ (Fig. 7). Recently I was quite surprised to see it offered for sale under the cultivar name of *G. littoralis* ‘Dairy Queen’. I suppose that somebody thought that it deserved a more regal name than the rather down-to-earth “Dairy Cream”. How much effort does it really take to consult a reference that will provide its correct name?



Fig. 7 *Griselinia littoralis* ‘Dairy Cream’. Photo: Murray Dawson.

Let's return to the production and use of indigenous floras as horticultural material. Australia has a more patriotic attitude as they do with so many other things and are years ahead of us with the development and use of cultivars derived from their native Australian plants. In contrast, until recently, New Zealand nurseries have tended to largely ignore the great possibilities of our native flora and have often not been able to see beyond the exotic plants to which they appear to have been so firmly wedded. Those few little grouches aside, I must say that the influence of ERMA and the HSNO Act really have had a quite beneficial and unintended positive influence on the general cultivation of our native plants. This renewed interest in and cultivation of New Zealand native plants may lead to the resurgence of deliberate breeding programmes to produce new cultivars of them. For these reasons, I feel that we can only look forward to a much better future in which our indigenous New Zealand plants rightfully occupy a far more important place in our gardens with more New Zealanders taking pride in growing them.

Just by way of conclusion, in case some have the impression that I am anti-exotic plants, I must say that we do like and grow a variety of plants, both native and exotic, in our gardens. However, being a born and bred New Zealander I feel all too often New Zealand gardeners tend to ignore the wonderful plant material that is indigenous to this country and so I must endeavour to tip the balance in favour of our native plants.

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Lawrie Metcalf is one of New Zealand's most authoritative writers on the cultivation of our native plants with more than 12 books to his credit. Probably the best known is *The cultivation of New Zealand trees and shrubs* which has been republished several times. His books are well-researched and illustrated by his own photographs and drawings.

Lawrie was Assistant Director of the Christchurch Botanic Garden for more than 20 years and then Director of Parks and Recreation in Invercargill but is now "retired". He has a particular interest in hebes and is the International Registrar for cultivars of *Coprosma*, *Hebe*, *Leptospermum*, *Phormium* and *Pittosporum*.

He was awarded the Loder Cup in 1978, an Associate of Honour of the RNZIH in 1988, the Royal Horticultural Society (UK) Veitch Memorial Medal in 1991, and was appointed a Companion of the Queen's Service Order (QSO) in 2010 for services to horticulture.



*Leptospermum scoparium* 'Red Damask'.  
Photo: Murray Dawson.