POHUTUKAWAS AGAIN

J. Beever

Since the article on Auckland pohutukawas appeared in the Newsletter, Jan. 1982 information has continued to come in from Bot. Soc. members and other interested botanists. The contribution of Ray Scrimgeour of the Forest Service who was on Raoul Island when I wrote to the Meteorological Service there asking for information to aid in defining the characteristics of Metrosideros kermadecensis, was of such importance as to warrant a re-think of the previous position.

In a meticulous professional way he listed for me the widths and lengths of the three largest leaves readily visible on each of twelve trees chosen at random in the environs of the Meteorological Station. Later he measured the longest and shortest stamens from samples of 13 trees flowering in the same area. These records from Raoul Island, the home of M. kermadecensis, have made possible a working definition of the species which could be used to compare with the N.Z. specimens which flower here usually outside the normal M. excelsa Christmas flowering period.

The stamen lengths from Raoul Is. agree very well with the Auckland Museum Herbarium specimens brought from the island by Cheeseman, Cooper and Shakespear, and with local Auckland trees which I had tentatively identified as M. kermadecensis. (See table below.) However the leaf lengths of the readily visible largest leaves on Raoul Is. show that 8 of the 36 specimens were 60mm long or over, whereas the Museum and locally grown specimens showed none over 60mm and only a small proportion over 50mm. Whether this difference is due to climate or to my choice of trees is still not clear. In general such Auckland trees are still comparatively young and my observations lead me to think that there is a tendency in all pohutukawas for older trees to produce leaves longer and narrower than the same trees when younger.

Finally from the widths and lengths of leaf measurements I calculated the Rotundity Index. In the first article I had defined this as $R.I. = \frac{\text{Leaf width}}{\text{Leaf length}} \times 100$. I now use the value $R.I. = \frac{\text{Leaf width}}{\text{Leaf length}}$ which I find has two advantages. The index is in decimal form, e.g., 0.63 instead of 63 which is more in line with current practice, and the numbers cannot easily be confused with lengths of leaves, e.g., 63mm which may be in the same set of figures.

The mean R.I. from Raoul Is. specimens was 0.63 which agrees well with 0.65 from the Museum specimens from Raoul Is. but is lower than the Auckland M. kermadecensis leaves at 0.70. This again may be due to the observation above that older trees have narrower leaves. However the 0.63 R.I. for Raoul Is. is well above the 0.53 mean for aberrant flowering pohutukawas in Auckland.

Below is a summary of the measurements of Metrosideros specimens from various sources.

	Length of stamens in mm.		Length of specimens of longer leaves in mm.		R.I. of those longer leaves.	
	Range	Mean	Range	Mean	Range	Mean
M.kermadecensis from Raoul Is.	13—21(22)	17	45—68	55	(0.45)0.50-0.79	0.63
M.kermadecensis from Museum Herbarium.	15—18	17	24—49	36	0.53—0.81	0.65
M.kermadecensis growing in Auckland	14—22	17	32—55	43	0.58—0.78	0.70
M.excelsa spp. in Auckland	20—37	27	53—124	92	0.33—0.43	0.39
25 aberrant flowerers.	15—30	23	30—82 (101)	67	0.37—0.69	0.53

In the light of these data it is necessary to modify my original estimates of the parameters of the different species and intermediates found in the Auckland Province. These pohutukawas may be classified thus:-

(a) Those which flower only once a year and then only in Nov-Jan. These are Metrosideros excelsa.

(b) Those which flower more than once during the year, or if they flower only once then it is not during Nov-Jan. These trees can be classified thus:-

(i) Metrosideros kermadecensis.

(ii) Putative hybrids M. excelsa x kermadecensis.

(iii) Various exceptional trees as detailed below.

Those which fall into the species M. excelsa would:-

(a) flower in Nov-Jan,

(b) have stamens mostly over 20mm long and often well over 30mm long,

(c) have the larger leaves about 100mm long and often longer,

(d) have the R.I. of the leaves between 0.33—0.43 with a mean about 0.39, i.e., they are slim leaves.

The species M. kermadecensis specimens would:-

(a) flower at intervals throughout the year,

(b) have stamens 13—20mm (22) long,

(c) have leaves generally less than 55mm long but very occasionally 60—70mm long,

(d) have the R.I. of the longer leaves in the range 0.50—0.80, with a mean about 0.70, i.e., they are broad round leaves.

To be classified as **Putative Hybrids** the trees would:-

(a) flower once or more outside the Nov-Jan period each year,

(b) have stamens 15—30mm long,
(c) have the larger leaves ranging from 50—80mm long, occasionally reaching 100mm,
(d) have the R.I. of these larger leaves in the range 0.37—0.69 and averaging about 0.53, i.e., intermediate between the slim M. excelsa and the broader rounder M. kermadecensis.

A quick field quide for a first appraisal would be:-

	Stamens in mm.	Mean length, larger leaves.	R.I. larger leaves.
M. excelsa	20--37	92mm	0.39
M. kermadecensis	14--20	43mm	0.70
Putative Hybrids	15--30	67mm	0.53

You will notice that I have not included inspection of the calyx lobes as a criterion. Although M. kermadecensis flowers have a characteristic lobe the M. excelsa lobes tend to vary more than first examinations predicted. They would only afford back-up evidence, whereas stamen length appears to be crucial followed by leaf length and R.I.

Among aberrant flowerers I noted various exceptional trees some of which require further study. These are:-

(a) **Variegated pohutukawas.** Commonly sold by nurseries and of two types.
(i) A form of M. kermadecensis, sold as M.kermadecensis 'Variegata'. This has yellow edges and a green middle to the leaves.
(ii) A form sold under various names of which the earliest was 'Sunninghill'. It appears to be a sport of the putative hybrid M. excelsa x kermadecensis. One specimen examined had stamens up to 30mm long, but had leaves with an R.I. 0.51—0.58 which is too high for M. excelsa. It differs from M. kermadecensis 'Variegata' in that its variegation is reversed, i.e.,it is yellow in the middle of the leaf and green at the edges, but this is very haphazard and the yellow is often splashed about unpredictably. Branches often revert to the true green form with leaves of the putative hybrid type. The rumour that it arose as a sport of M. kermadecensis 'Variegata' does not fit the facts.

A true variegated form of M. excelsa exists, there is one in the Auckland Domain. However the yellow is rather greenish and does not show up well. Sykes[1] calls it M. excelsa cv 'Variegata'.

(b) The **Parua Bay** tree which Mrs Katie Reynolds of Whangarei noted some years ago. Her father and a cousin brought the tree from Parua Bay as a seedling with numerous ordinary M. excelsa. They were planted in the church grounds at Onerahi and this one tree grew to resemble a M. kermadecensis although there is no evidence of such trees having grown there. The flowers are small, stamens 15±mm long, mature leaves 23—44mm long with R.I. from 0.43—0.64, mean about 0.50. There are two differences from the common M. kermadecensis found in Auckland. The leaves are rather more acute than usual and the R.I. is lower than usual 0.58—0.78, mean 0.70. That is the leaves are slimmer and more acute. Interestingly enough there is a tree at No. 2 Hiriri Ave. in Auckland with very similar characteristics. I do not know its history but until I saw the Parua Bay specimens I had thought of it as a M. kermadecensis.

Mr C. Devonshire of Tamaterau, near Parua Bay, reports that a few similar trees with trunks 3± metres in circumference and about 15 metres high grow there, flower intermittently, and look like M. kermedecensis. Such trees could date from 1900 or earlier. Clearly much more work is needed on these.

(c) **Little Barrier.** Our secretary Sandra Jones and her husband visiting Little Barrier, 29-30 April 1983 found an apparent M. exselsa in flower. Half a dozen flower heads and a dozen heads of flower buds still to flower. It was one of a line of pohutukawas along the shore between the hut and the shag colony, a little nearer to the shags than to Boulder Point. It was about the sixth tree along from the fence or stile in front of the hut. Three leaves were 60—64mm long with an R.I. 0.35-0.40 which looks like M. excelsa. Would you look for it if you visit there and measure stamens if flowers are seen and perhaps get the ranger to allow you to bring back one or two flowers.

Reference.[1] Sykes, W.R. 1974. Journal of the Royal N.Z. Institute of Horticulture, 2:43-6.

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NOMINA NOVA
or What was wrong with the old name?

J.A. Rattenbury

Members may sometimes wish that botanists would stop "mucking about" with the botanical names of plants, especially when they are feeling justly pleased at having finally mastered a Latin name only to discover that it has been changed.

New names (which are sometimes re-cycled older names) come in two categories, viz: 1) names for newly-discovered plants - a fairly rare situation among vascular plants in New Zealand - and 2) names given to known species because the currently-used name is unsatisfactory. In the second category are those plants for which the current name is invalid and those which, in the opinion of botanists who have studied them closely, should no longer be assigned to the group (taxon) to which they hitherto have belonged.

Invalid names arise for a variety of reasons, usually because of insufficient research into the published literature. Most examples come from taxa where an earlier name has priority - a name which was missed by later workers until finally unearthed and changed. The botanical rules of nomenclature are strict and usually there is no option but to change. Occasional exceptions are made, through "legislation" by the appropriate international committee, for taxa that have been in widespread (i.e. international) usage for some 50 years or more and the currently-used name is "conserved" against the otherwise valid prior alternative.

Name changes which arise through more detailed knowledge of or research on a plant group are essentially the opinions of those making the changes and the old and new names are regarded as "valid synonyms" either of which is legally acceptable. With time (and further study) the new name gradually becomes more widely-accepted (appearing in revisions of floras) or becomes quietly forgotten. Such changes may arise when, for example, two taxa are shown to overlap strongly so that some members cannot be readily assigned to either. They may then be