The New Zealand Rhododendron

Volume Five 2017

PUKEITI RHODODENDRON TRUST INC.

Current Board Members 2017 – 2018

Board Chairman
Gordon Bailey (Wanaka)
Deputy Chairman
Lynn Bublitz QSO (New Plymouth)
Board Members
John Eagles QSM (New Plymouth)
Marion MacKay (Palmerston North)
Stuart Robertson (New Plymouth)
Heather Robson (New Plymouth)
Neville Stewart (Auckland)
Doug Thomson (Dunedin)

Pukeiti Trust Fund

Chairman
John Eagles QSM (New Plymouth)
Secretary/Accountant
Grant Sarten (New Plymouth)
Trustees
Michael Brooke (New Plymouth)
Antony Burn (New Plymouth)
Michael Regan (New Plymouth)
Stuart Robertson (New Plymouth)

Members' Committee

Chairperson
Heather Robson
Secretary
Diane Jordan
Committee
Lynn Bublitz
Annette Cameron
Rene Duncan
Margaret Hodges
Bev Moratti
George Moratti
Brian Palmer
Graham Smith

Life Members

Mrs B Brown
Mr L Bublitz QSO
Mr G Collier MNZM (Patron)
Mr A Duncan
Mr J Eagles QSM
Mr E Frankham
Mrs A Gibbison
Mrs E Gill ONZM
Mr D Harrop
Mr A Hodder
Mr M Hudson
Mr A Hutchinson
Mr A Jellyman
Mrs D Jordan
Mr J Lovell
Mrs M Lovell
Mrs B McConnell QSM
Dr G Mason
Mrs J Mitchell
Mr P Morpeth
Mr B Palmer
Mr G Smith
Mr R Stead
Mr W Still
Mrs M Ward
Ms M Wilson
Mr TJW White

Patron

Gordon Collier MNZM (Taupo)

NEW ZEALAND RHODODENDRON ASSOCIATION INC.

List of Officers 2016 – 2017

President
Joy O'Keefe (Geraldine)
Immediate Past President
Tony Fitchett (Dunedin)
Vice President
Rob Singleton (Cambridge)
Vice President
Noeline Smith (Gore)
Secretary
Christine Wilson (Te Kuiti)
Treasurer and Membership Secretary
Mike Wagstaff (Te Kuiti)

Other Council Members

Ward 1. Northern
Robyn Bridgman QSM (Auckland)
Ward 2. Western
Jeff Johnston (Te Kuiti)
Ward 3. Bay of Plenty
Rob Singleton (Cambridge)
Ward 4. East Coast
Joy Gavin (Napier)
Ward 5. Central
Sue Davies (Palmerston North)
Ward 6. Wellington Region
Richard Nanson (Wellington)
Ward 7. Nelson, Marlborough, Westland
John Clayton (Ikamatua)
Ward 8. Selwyn, Waimakariri, Hurunui
Helen Coker (Christchurch)
Ward 9. South Canterbury – North Otago
Joy O'Keefe (Geraldine)
Ward 10. Dunedin – Clutha
Tony Fitchett (Dunedin)
Ward 11. Southland – Wakatipu
Noeline Smith (Gore)

Patrons

Mr D Hughes

Honorary Life Members

Mr J Howard
Mr D Hughes
Mrs K Millar
Mrs J Yeates

Past Presidents

Mr G Bailey
Mrs S Davies
Dr A E J Fitchett
Mrs K Millar
Mr R Nanson
Mr A G Trott
Mrs P Turnbull

Web Manager
Sandra Nichelsen - Geraldine
Archivist
Brian Coker - Christchurch
Accounts Reviewer
Lionel Smith – Te Kuiti
Registrar
Brian Coker - Christchurch
Website
www.rhododendron.org.nz
Email
secretary@rhododendron.org.nz

Rhododendron 'Sir Robert Peel'
Fountain Lake
Pukekura Park
New Plymouth

FOREWORDS

THE RED LIST.

Though some nurseries do organise their lists by colour, a recital of *Rhododendron arboreum, R. meddianum,* and R. *neriiflorum,* or *R.* 'Cornubia' (the Ilam form is particularly good), *R.* 'Little Glendoe', and *R.* 'Elizabeth' is not the Red List. This, the Red List, is the world's most comprehensive inventory of the global conservation status of biological species, produced by the International Union for the Conservation of Nature. Species and subspecies are graded into seven levels, ranging from *Extinct,* through *Extinct in the Wild* to *Least Concern*, with two side-categories of *Data Deficient* and *Not Evaluated*.

The genus *Rhododendron*, at least partly because of the destruction of its natural habitat that Peter Cox was warning us about decades ago, has a distressingly large Red List, and some members of the NZRA have been working on ways to address the obvious conservation issues raised by the Red List, in particular by the use of *ex-situ* conservation.

In the last year Sue Davies, Marion MacKay, and Graham Smith have, between them, published two more papers relating to the Red List, and the conservation of *Rhododendron* species. One analyses Red List *Rhododendron* taxa by country of origin, to identify priorities for *ex-situ* conservation, and the other considers New Zealand collections of rhododendrons held by public bodies, trusts and private individuals (including Pukeiti and Heritage Park) as a resource for *ex-situ* conservation.

MacKay, Smith Gardiner (NZ Journal of Botany, 2017, Vol 5, No 2) point out that although the New Zealand Biodiversity Strategy identified the role of collections of introduced plants in New Zealand, and that the need for a network of living collections has been recognised for some time, New Zealand doesn't yet have an *ex-situ* conservation strategy for either indigenous or introduced flora. It may have no indigenous rhododendrons, but the findings of those papers remind us that collections in New Zealand can contribute to the *ex-situ* preservation of threatened *Rhododendron* species. Also their method of identifying which groups of *Rhododendron* taxa require conservation can be applied to other plant genera and families.

So members of Pukeiti and the NZRA have helped, and can continue to help, the cause of conservation, not just of rhododendrons, but, it is hoped, of other genera.

Tony Fitchett – President, NZRA

PROGRESS CONTINUES

Once again we have a joint bulletin that is a first class read for all those interested in rhododendrons and related garden activities. A huge vote of thanks to our Editor Lynn Bublitz, his willing helpers and of course the article contributors.

The important issues I want to highlight concerning Pukeiti include:

- Formal submission to the TRC annual plan supporting the Council's proposal to increase funding for the Lodge rebuild. The Council approved this increase.
- Fantastic progress being made by Board member Dr Marion Mackay on the Ex-situ Rhododendron Conservation Strategy – see article.
- A fantastic plant sales offering coordinated by our hard working Members Committee
- A magnificent international tour to China ably coordinated by Lynn and Robin Bublitz.
- Real progress on the Lodge rebuild plans, to reflect both Pukeiti and TRC requirement. We look forward to the new Lodge coming together by mid-2018.

Especially exciting was the recent opening of the Rain Forest Pavilion, formally known as the Gatehouse, by the Governor-General Dame Patsy Reddy in early September.

This is the main entrance point to the garden and has a real WOW factor. The aerial walkway from the Café to the Water Wheel Lookout is a truly unique feature and well worth a visit

It's amazing to look back over the last seven years since our partnership with the TRC was formalised and just compare the here and now with then. What a transformation, and clearly the 30,000 visitors that came over the last year agree with the changes. I only hope that at least a small proportion of them are inspired and become rhododendron growers. Just how we try to target this market is something the Board is giving thought to.

The exciting times are to continue at Pukeiti over the next year with the aforementioned Lodge rebuild and a major development of the old wetland area, plus a few other surprises.

Gordon Bailey – Pukeiti Rhododendron Trust Board Chairman

CONTENTS

Front Cover
Rhododendron 'Floral Gift'
a Mark Jury hybrid

The New Zealand Rhododendron *Volume Five* 2017

Financial assistance has been provided by the Taranaki Regional Council through the partnership agreement with the Pukeiti Rhododendron Trust.
Thanks are extended to all the contributors, authors and those who have provided photographs and advice.

Editor: Lynn Bublitz

Special thanks to Gordon Bailey for accessing articles and to previous editors for their help and advice.
Designed by: Sam Design, New Plymouth
Printed by: Wickliffe Solutions

INTRODUCTION

RHODODENDRONS PART OF OUR HORTICULTURAL HERITAGE

Lynn Bublitz

Rhododendrons have long been a part of New Zealand's horticultural heritage. Some of the early plantings, such as 'Sir Robert Peel', in public parks and old gardens are now large trees and a particular feature in the early spring. The appeal of these plants has captured the imagination of nurserymen and gardeners for over a century. A wide range of plants and seeds was sourced from growers and collectors around the world. Many of the species growing in New Zealand are now endangered in the wild because their natural habitat has been altered or destroyed. The *ex-situ* project, headed by Dr Marion Mackay, seeks to identify and quantify those growing in New Zealand gardens and collections and is part of a world-wide movement to conserve species, making Marion's work of international significance.

A population of genetically different individuals is required for the conservation of any species, and establishing the plant's original geographic location is essential so that should a broad genetic range not be available in New Zealand, new material may be introduced in accordance, of course, with established protocols.

Bublitz Garden

Many species are difficult to grow as they occupy a narrow niche in their natural environment. As a result hybrids have been developed and selected to give more vigour and appeal. They have long been the choice of most gardeners. Hybrid azaleas have been grown in Japanese gardens for over a thousand years and in some cases the species from which they were developed are unknown. They were the first rhododendrons introduced from the east to European gardens in the eighteenth century and their beauty led to waves of the larger rhododendrons being introduced over the years that have followed. Subsequently thousands of hybrids have been produced, many of them registered. Among them are many beautiful plants. Driving through the country-side and towns of New Zealand in the spring they can be seen hanging over and appearing above many fences of well-established gardens. A number of them are old hybrids, tough and disease resistant and years old, and of course well suited to the climate of the area. Some new hybrids, chosen because of their colour or foliage form, have lost popularity because they grew too large for their site or have not thrived in the prevailing climatic conditions. However, there are many very good New Zealand hybrids, but like all plants they to are subject to the garden fashion of the moment. To be successful, each named hybrid must retain its popularity, so demand requires more to be vegetatively propagated. Seeds just produce more variants.

The NZRA has compiled a catalogue of New Zealand raised hybrids, trialled many new ones and is seeking hybrids which have lost favour, but still might be growing in some of the older gardens, with the aim of propagating them and offering them for sale. Fashions could change and they might again become popular. Heritage Park in Kimbolton has a comprehensive collection of NZ raised hybrids among the 2000 different types grown, and like Orton Bradley, Tannock Glen, Pukeiti and other botanic gardens is well worth visiting.

To preserve the best hybrids and conserve species each must be grown in the regions and gardens to which they are best suited. We are indeed blessed by having a large range of habitats in such a small country, allowing us to grow a range of species from sub-tropical to alpine.

Few gardens are devoted to rhododendrons only, and most have a range of companion plants which complement them and extend the flowering season. Successful plant breeders too, usually have a particular interest in a number of genera, some of which become favourites of gardeners as well. Collectively the range of plants is the palate from which good gardens are composed. They are living works of art. May rhododendrons remain a significant element of their success.

TROTT'S GARDEN

Alan Trott

R. 'The Master' and wisteria walk

I became a rhodoholic when I met two couples in my early days of gardening, and it was these folk who introduced me to THE WORLD OF RHODODENDRONS. First were Graham and Helen Holmes from 'Holmeslee' at Rakaia, and later Mollie and Ivan Wood from Ilam, Christchurch. Mollie later became Mollie Coker. All were strong minded people who had a vision of making a garden and growing and planting rhododendrons. Both hybridized and grew rhododendrons from seed as well as from cuttings.

Graham nominated me for membership of the NZ Rhododendron Association, which at that time required a seconder, who for me was Mollie Wood. It was an exclusive club, one felt at the time, [then about 1965] as folk who grew rhododendrons mainly had large gardens. Mollie then was also a member of The American Rhododendron Society and she encouraged me to join that also, as they had an amazing seed list, and this is where some great species and hydrids came from as the Americans were at the forefront of rhododendron cultivation. I joined them in 1967 – now 50 years ago – and later paid a Life Membership. The ARS still continue to put out 4 grand publications per year.

In Dec 1978 Catherine and I purchased 4 hectares on the outskirts of Ashburton, and started to develop the garden and make a nursery specializing in rhododendrons in 1984. We would go out to Holmeslee and collect cuttings from their magnificent hybrids and to this day they are my favourites in our garden.

'Lalique' is one, with a great flower truss blooming in mid-season. Its flowers are pure white with a greenish eye, and scented, which always attracts attention. It tends to grow wider than high, and is suited to the larger garden. I have seen it in many gardens around New Zealand, thriving. 'Holmeslee Diamond' is 'Wax Eye' X 'Van Nes Sensation' and one that Graham hand-pollinated. The truss has about 10 flowers which are white with a slightly yellow eye and wavy floret. Another from the same cross is 'Holmeslee Pearl' – my favourite. The plant grows slightly higher than wide and will grow in full sun, and I well remember the original plant in a very hot sheltered position. This plant is in a number of gardens and is one that I must register. The pure white flowers form a very upright truss, which is perfect, but its other attribute is that it has an amazing scent, which fills the garden, so this is a bonus.

The best white rhododendron in our garden is *R.* 'Helen Holmes' which is a Loderi cross. This plant grows wider than

tall and in mid-season pure ice-white waxy flowers appear on a perfect truss. This is one which we should grow more of, but it needs to be grafted. I think it is a seedling from Ilam, but well named after a great plantswoman.

Another favourite in our garden is 'Holmeslee Triumph' which has a massive conical truss of dark pink. It is a very strong plant in growth and although never tall is well named and should be in more collections.

Graham also pollinated *R. yakushimanum* with *R. dichroanthum* and produced some amazing soft apricot flowered forms which did not get named, but I still have them in our garden and treasure them for their compactness and flower truss. Another *R.yakushimanum* X *R.elliottii* was named *R.* 'Alec Holmes' after their son, and this has a slight lavender flush with a slightly speckled throat, which later fades to a greyish white. Again this remains a compact plant.

These are just a few of the Holmeslee treasures which grace our garden, but there are more. Graham also grew many azaleas from seed which he obtained from Ilam and also from Dr J Yeates. These were grown in large beds in full sun and many I selected and grew and I now have them also in a large bed.

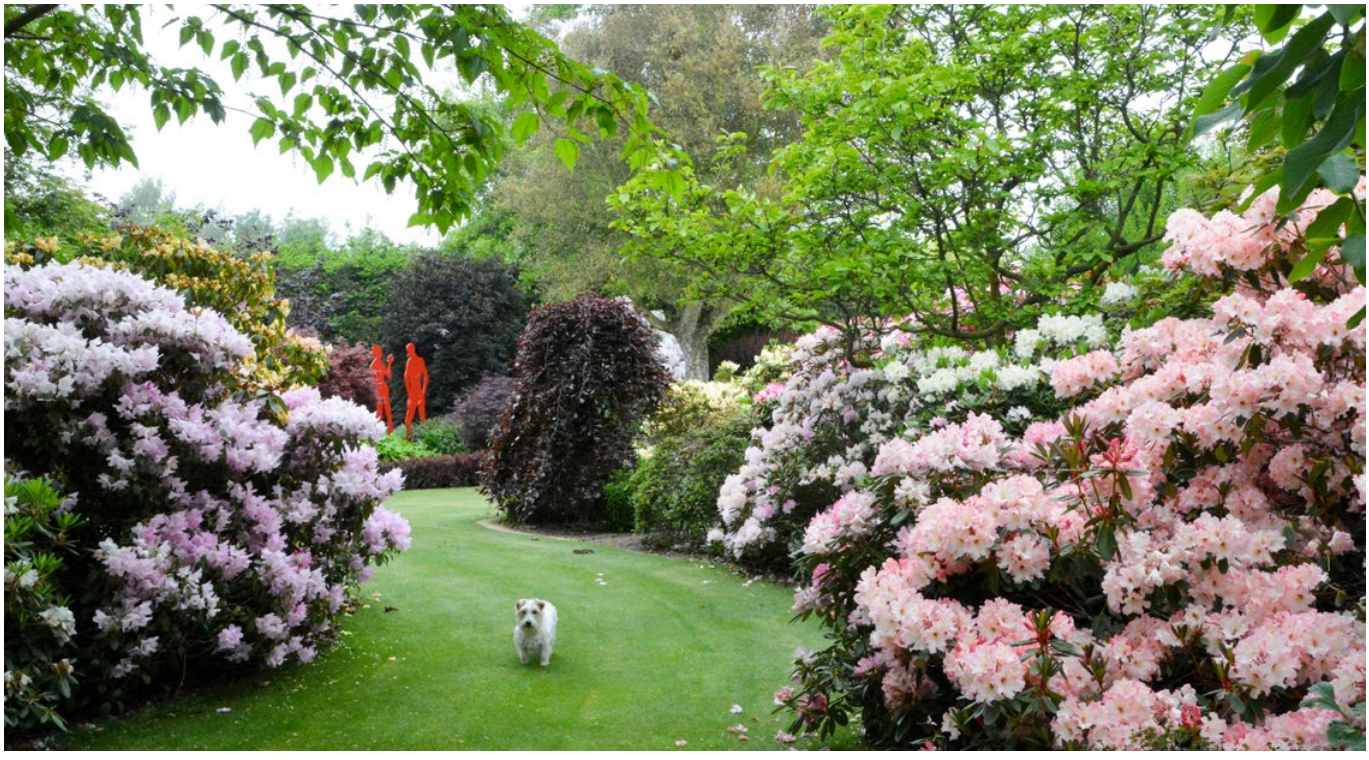
Mollie and Ron Coker produced some fine rhododendrons which thrive here and all proved winners. My favourite is *R.* 'Mollie Coker' which has a huge truss of deep pink flowers with a reddish blotch, and when in bloom and swaying in the wind visitors say “WOW!”. It's a large grower and needs plenty of room.

One I have always liked is *R.* 'Coker's Pink' which has the most unusual flowers – pink flushed with a tint of apricot. The plant is a little open in growth but planted in a woodland setting it grows well. *R.* 'Pacific Queen', *R.* 'Pacific Princess' and *R.* 'Ivan D. Wood' were grown from seed from The American Rhododendron Society and have proved winners with their beautiful soft pink-flushed apricot blooms. These three grow well here in our garden and every year put on a great show.

When planning our garden I decided that it must NOT be just a spring garden of only rhododendrons, it must be a garden for all seasons. Before I started the garden I drew a plan for the woodland part first, and one of the criteria was that it MUST have a big central lawn, as one needs to stand back and look at the vista, and very wide paths, so that one could get a tractor down to collect the rubbish etc, and this has proved a godsend in clean-up time, as well as for taking away branches. Most of the trees are selected grafted forms, like the magnolias and acers.

Trillium chloropetalum

Meconopsis betonicifolia



A view to the Red Garden

Woodland garden and Belvedere

I planted *Prunus* sp. for quick shelter but have since taken them all out as they flowered for such a short time and suckered badly. I have replaced them with *Cornus* sp. which has proved an excellent move as they bloom for many weeks, and some flower after the rhododenrons have finished and have excellent autumn colour. All the above have been a great addition to the rhododendron woodland garden.

In 2006 on the eastern boundary I had about 65 rhododendrons which did not like the dry and heat, so I decided to take them out and make a Red Garden which has been a winner.

R. 'Pavlova'

All the plants must be red-flowered or red-leaved and later in the summer it comes into its best. It is 65m long by 5m deep. Creating this most successful garden has been much fun.

The formal garden has bought a new dimension to the property, giving it a different life and format. The perennial border is 110m long and double sided and has only herbaceous plants, so it's not a mixed border of trees, shrubs and roses. I am really enjoying this part of the garden as it starts flowering in early spring and even in early winter it has its beauty with many forms of plants. In the middle of the formal area I have 4 knot gardens of different designs, made out of *Buxus sempervirens*. These are quite unique in NZ and now can be viewed from a Tower which has 2 spiral staircases, one for going up and one for going down.

The Damp garden originally was the creek but it closed down, and I had to put in a water system to keep my moisture loving plants looking good for the summer. This garden has many foliage plants. Some are large-leaved like *Hosta*, *Rodgersia* and *Darmera peltata* and *Lysichiton*. and moisture loving plants like *Iris ensata*, *Primula* and *Ligularia* etc. *Nyssa sylvatica* 'Sheffield Park,' *Nyssa sinensis* and *Betula nigra* 'Heritage' provide shade for some of the perennials, but it's the autumn when they show off their splendour.

Choosing plants for a garden for all seasons is an exciting exercise as is working out what goes where. My advice is to plant the best of cultivars wherever possible, and feed them well with compost and mulch and you will be justly rewarded.

Remember – A garden is not an object but a process.

Vita Sackville West wrote:

“ The more one gardens, the more one learns, the more one realizes how little one knows.”

Editor's Note. Trotts have sold the garden to a Trust which has undertaken to maintain this Garden of National Significance.

Knot Gardens and Brantwood Chapel

EVERGREEN AZALEAS AT PUKEITI

Graham Smith

R. amoenum

I suppose this article should start with a definition of 'Azalea' which confuses most when we immediately change to 'Rhododendron' on the label. Blame Linnaeus for this when he produced his 'Species Plantarum' in 1753, introducing the binomial system of plant naming that we use today. We should thank him for the simplicity of this because up until that point naming of plants was often very ad-hoc, written up by scholars in Latin basically as long-winded plant descriptions sometimes needing more than 12 words. The labels would have been very large! Linnaeus gave us the genus *Rhododendron*, derived from the Greek name meaning 'Rose Tree', but he also included another genus, *Azalea*, comprising 6 species of mainly American and European origin. At this point the vast number of Asiatic species was unknown and it was not until some 80 years later that George Don revised Linnaeus's work in the light of the new discoveries and put both genera under *Rhododendron* and discontinued the *Azalea* name.

To complicate the picture various name changes have occurred through geographical misunderstandings and/or commercial practices. The 'evergreen azaleas' we know today were originally introduced to Europe by trading ships from the 'East Indies' which was centred on Batavia, now Jakarta, in Indonesia. These ships were Dutch and they traded with China and Japan and between the 1700s and 1800s brought back thousands of potted 'Indian Azalea' plants for wealthy owners of grand estates for use as pot plants in their glasshouses. This soon led to a vast new hybridisation programme centred in Belgium, hence the Belgian Indica Azalea industry. The backbone of many old collections even today can be traced back to these plants and later breeding programmes in America in the 1920s. These include the Rutherford and Southern Indicas and later the Glenn Dales.

Evergreen azalea species are mostly from S Asia including SW and Central China, Taiwan, Japan, Vietnam, Korea, Philippines and Vietnam. They can be very widespread as a species or very restricted to one or two specific sites only. Geographically, the higher the altitude the smaller the leaves and more compact the plant will be, while still having considerable variations. Interestingly many of the Chinese species have not found their way into cultivation.

Pukeiti plantings of evergreen azaleas were made fairly early in the formation of the garden. Once clearing was underway with borders and beds marked out by John Goodwin, he drew up plantings plans showing extensive under-planting of the rhododendron collection with large groups of azalea hybrids, sometimes up to ten of each variety, to give real impact in flower. These were essentially Belgian and USA Indicas and others that were common in the nursery trade in the 1950s and 1960s. Many of these

are still in their original sites and with ongoing management practices provide great colour and textural form to the spring and early summer display. Names such as 'Albert Elizabeth', 'Comtesse de Kerchove', 'Dorothy Gish', 'Hexe', 'John T D Lewelyn', 'Madame Auguste Haerens', 'Niobe', 'Paul Schaeme', 'Rubis de Meirelbeke', 'Temperance' and 'Violacea Multiflora' date from 1878 to 1938.

Southern Indica Azaleas were derived from Belgium and also imported directly from the East Indies to South Carolina and Georgia, USA. They became a favourite of the wealthy plantation owners as they adapted well to the warm, humid conditions and became available in large numbers for mass plantings. A Belgian nurseryman, P J Berkman, established a nursery in Augusta, Georgia and was a key developer of this line of plants and no doubt the pictures we see on TV of the USA Open Golf Championship course shows us how these plants love that climate. Shame the golf gets in the way?? Another later hybridizer was the Bobbink and Atkins Nursery in New Jersey, where in the 1920-30 period the Rutherford strains were raised, chiefly as pot-plants for the indoor trade. These are represented at Pukeiti by 'Alaska', 'Constance', 'Dorothy Gish' and 'President F D Roosevelt', amongst others.

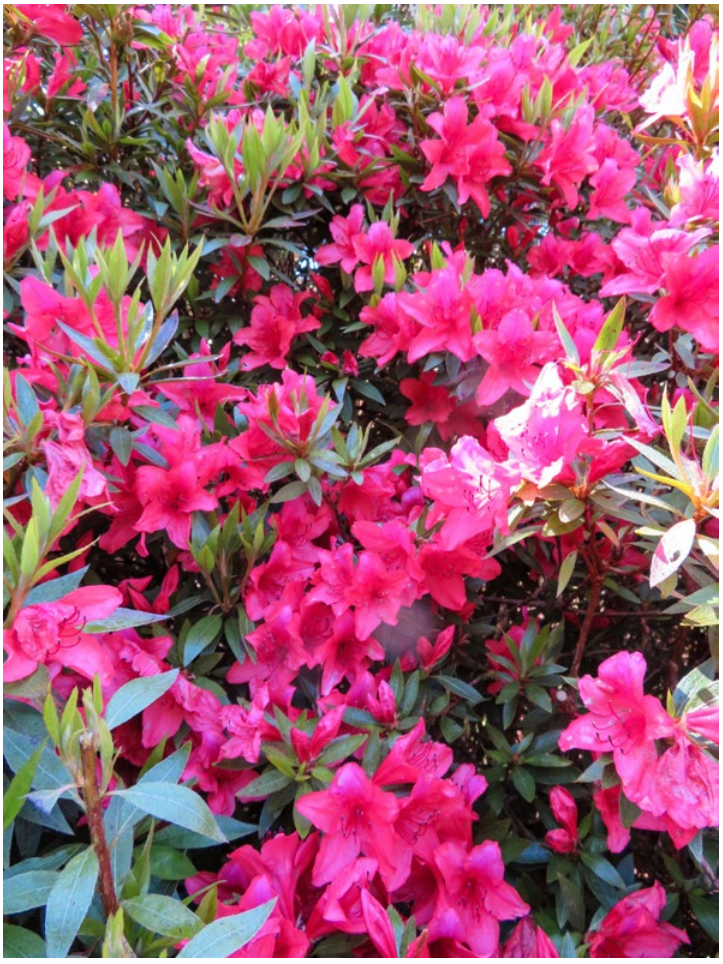
The other major American breeding programme was the Glenn Dales, coming out of the Plant Introduction Station, Maryland and the passion of the Director B Y Morrison in the late 1940s. From more than 70,000 seedlings, 440 clones were introduced and they were significant because they evolved from more than nine different species and clones to give greater variation in reliable hybrids that suited wider climatic regions. A selection of these was imported by Pukeiti from the Savill Gardens, Windsor, UK and these were propagated and eventually planted in several sites along the Matthews Walk and also below the Hybrid Block on the Marshall Walk. Generally they have larger foliage, are bigger shrubs and flower later than the others and have performed very well in the Pukeiti climate. Names include 'Buccaneer', 'Louise Dowdle', 'Martha Hitchcock', 'Helen Close', 'Gypsy', 'Niagara', 'Lullaby' and 'Mary Helen'.

R. kaempferi 'Eastern Fire'

Kurume azaleas are Japanese as the name suggests, originating from Kyushu Island and the higher elevation mountains where their twiggy, small-leaved shrubs cover large swathes of hillsides. Japanese nurserymen have cultivated these and hybridized them for more than 300 years. Being compact in growth they have always been popular for pot plants and for the art of Bonsai, but they are very adaptable and perform well at Pukeiti, imparting a more dainty and refined look to plantings. The flowers are also small, in dense clusters and can cover the shrubs completely in mid-spring. The Yokohama Nursery in Japan and Domoto Brothers in California were instrumental in introducing large numbers into the USA between 1915-1920. Even more famous is the 'Wilson 50', an introduction of the best forms by the famous plant hunter Ernest Wilson in 1919. These all came with their Japanese names but as these were difficult to repeat they each had a Wilson Number. Then a little later an English translation was given, not always with accuracy. Examples are 'Kirin' = 'Wilson 22' = 'Daybreak' and 'Yaye Hiryu' = 'Wilson 29' = 'Scarlet Prince'. Many of these and other kurumes came into New Zealand in the 1900s, often under a mix of names to add to the confusion. The Pukeiti representatives are spread out amongst all the azalea plantings, originally centred around the Lodge Lawn, Richardson and Matthews Tracks plus the Hybrid Block where they still exist. The most talked about plant is the very large specimen of *R. amoenum* on the Lodge Lawn borders with its masses of small purple flowers in a big dome. Remarkably, all over the plant there are branches with red flowers, so it looks like 2 plants growing together. It is not actually a true Kurume but an old Japanese hybrid however it fits the profile apart from its size. The

plant exhibits chimera qualities in that two different layers of growing tissue merge, one inside the other and these randomly appear as different flower colour branches all over the plant.

Two smaller groups of evergreen azaleas are both later-season flowering, which means around November through to January. The first are generally small compact shrubs with average sized leaves known as 'Satsukis'. They are the most popular group in Japan and the name means 'Fifth Month' – May for them. Typically they have quite large open single flowers in a wide range of colours but in very different variations not seen in other groups. Japanese nurserymen have selected these over the centuries and more than 500 have been named with Satsuki Societies devoted to them, and they retain their Japanese names in cultivation. Flowers can have blotches, dark and light margins, stripes, speckles and quarters of different colours, or completely different colours on individual flowers in one cluster. We have used these as foreground plants in beds and borders because of their size and addition of later colour. There is another allied group known as 'Gumpos' that are very small growers in white, pink, rose and broken colours, useful for tiny spaces.



R. simsii

The last of this selection is the 'Nakaharai' group from N Taiwan and these are small spreading shrubs, usually much wider than high, with orange-red flowers in the species selection *R. nakaharai* 'Mt Seven Star'. The small leaves are dark glossy green and they set off the bright flowers well, particularly with the North Tidsbury hybrids raised in the USA by Polly Hill. A selection of these was imported by Duncan and Davies and they have performed very well at Pukeiti as edging plants on banks and borders, flowering in December. Varieties include 'Alexander', 'Joseph Hill', 'Michael Hill', 'Pink Pancake', 'Susannah Hill' and 'Wintergreen'. The latter is well named as it retains the same colour all year round while the others assume more purple leaf tints in the winter.

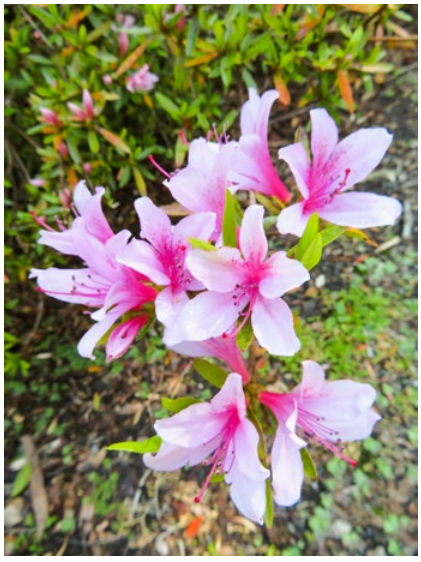
Evergreen azalea species are not really common in New Zealand, but one that has made Pukeiti very much its home is *R. simsii*, which happens to be one of the most widespread in the wild from NE Myanmar through S China, Thailand, S Taiwan and S Japan. It is vigorous when growing well and can reach 3m in height and spread, but is more often seen in the wild as growing on rock faces, banks and forest margins where it is smaller and compact. The flowers are red, often with an orange tint and darker in the throat. The selection at Pukeiti was grown from the NE Myanmar collection of Frank Kingdon Ward in 1953 under KW22036. One long border on the Matthews Walk was planted with these, with *R. elliottii* behind it, and this still remains today, except that the specimens of *R. simsiis* need to be cut almost to the ground every 10-15 years otherwise they reduce the track width. By pruning small groups along the length of the border at different times it never looks too drastic and even hard pruning has them flowering again 2 years later. That they like the climate is proven by the occasional plant growing epiphytically out of tree fern trunks close by, just as they do in the wild.

The other Chinese species is *R. microphyton* from the country's SW and also Myanmar, Thailand and probably N Vietnam. It is a twiggy small plant with small leaves, usually found growing in dry scrubland, not really Pukeiti conditions. It has unusual tubular campanulate flowers, small and in dense clusters, usually purple-pink, pink or occasionally white. A plant in full flower is attractive but being quite tender it is rarely seen in collections.

Taiwan is home to many species and some have done well at Pukeiti including *R. oldhamii*, introduced by John Patrick from his 1974 collections under Rhododendron Venture, and grown on by NZ Rhododendron Association at Massey. This is another showy orange-red flowering shrub usually spreading wider than high and with distinctive large, pale green hairy leaves and stems. We grow two forms, one with red stems and the other with lime-green stems but the hairs are reddish in both and the flowers are similar. It was used last century as a parent for new hybrids but it is likely to be a bit tender for colder climates although this is a good species for New Zealand. Another from the same collection is *R. kanehirai* which

has very distinctive small, narrow, glossy leaves densely packed along the stems which set off the smaller orange-red flowers. These are nicely in balance with the leaf size and it is a pretty shrub, although again rarely seen as it comes from close to sea-level and is somewhat tender for anything other than a mild climate.

A strange azalea which always garners comment is *R. macrosepalum* 'Linearifolium', the strap leaved azalea. The twiggy plant grows up to 2m and is distinctive with its very long narrow and hairy leaves which in turn display flowers that look like pink versions of the leaves; quite bizarre but also very popular with the visitors.



R. kanehirai

It is probably a sport off a normal plant and may well be a hybrid.

Yet another twist to the naming tale is *R. yedoense* which in cultivation is a double flowered form of the true species from Korea. Because the attractive double, soft-lilac flowered plant was the first to be named, the true single flowered species had to be called a variety, namely *R. yedoense* var. *poukhanense*. The single form is rarely seen but both are easy to grow and attractive in the garden.

Japan yields the most species seen in cultivation and a number are or have been cultivated at Pukeiti over the years. *R. kaempferi* has been represented by the Award of Merit clone 'Eastern Fire' and is an upright shrub to 2m, somewhat open and twiggy and bears quite large soft orange-pink flowers in mid-spring. In cold climates in can be semi-evergreen. Another strange form of this species is 'Polypetala' which is a more compact grower with very narrow bright green leaves and showy narrow-petalled red flowers. It certainly gets noticed by visitors who when told it is a rhododendron usually say "No, it can't be, nothing like one!"

Of a similar nature is a small dense azalea that came to us as *R. yakuinsulare*. It has almost needle like dark green leaves which turn deep red in winter. The flowers are again small and narrow petalled, orange-red in colour. It looks an ideal candidate for Bonsai cultivation. Since growing the plant I found that it should be *R. otakumii*, named after the Otakumi River on Yakushima Island, S Japan. Whether it is a true species or a branch sport from a plant beside that river I do not know, but it is an interesting specimen and grows well in the garden.

There are a number of very small-leaved species that have been grown at Pukeiti over the years, mostly sourced from the many excellent alpine plant nurseries in the South Island. These include *R. serpyllyfolium* with tiny leaves and small pink or white flowers, *R. tschonoskii* with small leaves, sometimes semi-deciduous and with small white flowers, *R. tsusiophyllum*, an alpine plant with tubular white flowers and *R. sikayotaizanense* from Taiwan, with tiny leaves and red flowers. All these need open conditions where they will not be shaded by other plants and they can be tricky and die for no obvious reason.

R. mizo-no-yamabuki under *myrtis luma*

The evergreen azaleas (rhododendrons) make up a very important part of the Pukeiti landscape and collection. In their own way they provide a huge impact colour-wise in the spring and early summer and are great companion shrubs wherever planted. They are the last of the collection to be catalogued onto the Plant Database, mainly because they need to be clearly identified from the original 1950s plans and that is going to be a slow and meticulous task for those involved. They deserve nothing less.

R. 'Red Wings' – Hybrid Block

THE LEGACY OF MOLLIE AND RON COKER OF ILAM, CHRISTCHURCH

Brian Coker

R. 'Mollie Coker'

There are still many in the New Zealand Rhododendron Association who, I am sure, can count Mollie Coker as a formative influence on their interest in the genus *Rhododendron.* Alan Trott of Ashburton, Denis Hughes of Blue Mountain Nurseries (while a student at Lincoln University – then Lincoln College), Barry Sligh of Governor's Bay and Jeff Elliott of Amberley all benefited from Mollie's extensive knowledge and joy in sharing her love of these plants. When she married Ron in the early 1970s he also became a devotee of the genus and his experienced green fingers were evident in the garden as he initially worked with Mollie and in later years took on most of the garden work.

In the 1950s through to 1980s there was a group of NZRA members who were actively hybridising, growing and evaluating new rhododendrons both for their own gardens and to share between themselves and other enthusiasts.

Mollie was at the forefront of that group. She and her first husband, Ivan Wood, had purchased a property of some 2.8 hectares (7 acres) in the Christchurch suburb of Ilam in the mid-1940s, at a time when the area was semi-rural.

The adjoining property was owned by Edgar Stead where he had already developed a significant garden for which he had been importing and hybridising rhododendrons and azaleas for a number of years.

Mollie began developing her garden of about 1 hectare (2.5 acres) and started planting choice trees and shrubs as well as developing an extensive collection of rhododendrons, azaleas and camellias.

Edgar Stead was happy to share his extensive knowledge and gave Mollie access to his garden for her to collect seed. With the same practiced eye that Mollie used in horse and pony judging at A&P Shows, she selected seed from plants which showed the best characteristics from Edgar Stead's breeding programme.

Mollie and Brian Coker and Guest

The Loderi group cultivars (*fortunei* X *griffithianum*) of which Edgar had an extensive collection, were of particular appeal to Mollie and it is fitting that the first rhododendron that Mollie registered was *R.* 'Mollie Coker', a lovely deep pink open pollinated Loderi with a wine-red blotch in the throat and typical Loderi fragrance. The name was selected by the NZRA and is the second registration on the New Zealand Rhododendron Register.

Mollie went on to register 13 other hybrids, including a number of other Loderi-type hybrids such as 'The Dream', 'White Sails' and 'Phantom'. She also used seed obtained from the USA which, on one occasion, included seed of 'King of Shrubs' X 'Fawn' x 'Dido' resulting in a number of plants which she registered, including the one named for her late husband 'Ivan D Wood', and sister seedlings, 'Coral Queen' and 'Pacific Princess'.

Other rhododendrons which Mollie used as seed or pollen parents included 'Crest', 'Tally Ho' and *R.wardii.*

There are most probably just as many hybrids that others have registered which were initially raised by Mollie and this is indicative of her generosity and the spirit of sharing of material and seedlings which occurred at conferences and between NZRA members.

Graham and Helen Holmes at Rakaia, in particular, grew on and registered a number of cultivars that Mollie had raised with arguably the best of these being 'Lalique',another of the Loderi-type hybrids. Others to have registered plants which Mollie either hybridized or had raised include Lachie and Olwyn Grant from Temuka, Micky Kerr, David Sumpter, Joyce Clyne and Barry Sligh who registered 'Ron Coker', an open pollinated Loderi with a low growing habit.

Ron had married Mollie in the early 1970s and became equally as enthusiastic about rhododendrons, developing his own breeding programme while helping Mollie maintain the garden. Ron registered

The Coker homestead

'Coker's Misty Dawn' which was one of the last of Mollie's crosses using the lovely FCC form of *R.yakushimanum* (now *degronianum* ssp.*yakushimanum*) which was well established in the garden, crossed with 'Edith Carey'. Mollie had imported her plant of *R. yakushimanum* in 1961 and it was well positioned in the Ilam garden to accentuate its lovely form and foliage. Unfortunately, the plant did not survive the move that Ron made to a smaller property in 1988.

Mollie's influence also extends to a further generation of hybrids, with Barry Sligh, of Governor's Bay near Christchurch, having used Mollie's hybrids in his own breeding programme. In this regard he has particularly used 'Coker's Pink' which is a parent of nine of Barry's own registered hybrids. Mollie regarded this as a plant which coped extremely well with hot Canterbury conditions.

Mollie and Ron generously made their garden available to many enthusiasts to gather scion material for propagation, seed or pollen for hybridising. Jeff Elliott of Amberley and Denis Hughes of Tapanui both had the opportunity to tap into Mollie's extensive knowledge and access the wide range of material in the garden, some of which had been directly imported from the USA or the UK, in the days when doing such things was a much simpler process.

The garden had a fine collection of deciduous azaleas providing evidence of the wonderful array of colours available. Apart from a dozen imported plants and a few old mollises, all of the azaleas in the garden had been grown from either Ilam or Exbury seed in the two small glasshouses on the property.

The garden in Ilam Road has not survived and Mollie had a belief that a garden was for a person's lifetime and she had no desire for it to necessarily be maintained. She had sold the property some years earlier to the University of Canterbury with the right to remain there for her lifetime. The house and historic barn and stables were subsequently demolished by the University after they took possession in 1988, and the garden was cleared, apart from some original planting retained along either side of the small creek. The University then developed the property as part of the University of Canterbury campus.

Both Mollie's and Ron's names live on through 'Mollie Coker', the rhododendron named in her honour, and Barry Sligh's registration of 'Ron Coker'. Mollie is referenced through other plants, such as the plant given by her to Graham Smith, when he was at Pukeiti, and named by him as 'Mollie's Gift', plus a fine red deciduous azalea which had been grown by Denis Hughes from seed collected in Mollie's garden and named by him as 'Mollie'.

On the next page are lists of plants which Mollie and Ron registered plus those registered by others but in which Mollie has had some involvement.

Brian Coker*

**Brian is a nephew of Ron. Ron and Mollie were the catalysts for Brian and his wife Helen's interest in rhododendrons. Brian and Helen are both past office bearers of the Canterbury Rhododendron Society and both currently serve on the Council of the New Zealand Rhododendron Association.*

Cultivars raised and registered by Mrs A M (Mollie) Coker

'Coral Queen'	'King of Shrubs' X 'Fawn' x 'Dido'
'Mollie Coker'	open pollinated Loderi
'Ivan D Wood'	'King of Shrubs' X 'Fawn' x 'Dido'
'Phantom'	*griffithianum* seedling
'The Dream'	Loderi group seedling
'Gilded Gown'	'Crest' X unknown
'Coker's Pink'	unknown
'White Sails'	unknown
'Whipped Cream'	unknown
'Touch of Class'	*agastum* X 'Tally Ho'
'Pacific Queen'	unknown
'Moon Shadow'	*wardii* X unknown
'Pacific Princess'	'King of Shrubs' X 'Fawn' x 'Dido'
'Ice Cream Vanilla'	Unknown (unregistered)
'Plum Duff'	Unknown (unregistered)

Cultivars raised and registered by Mr Ron Coker

'Olivia Coker'	'Ivan D Wood' X 'Coker's Pink'
'Coker's Choice'	'Ivan D Wood' X 'Coker's Pink' (sister seedling to 'Olivia Coker')
'Coker's Misty Dawn'	*yakushimanum* X 'Edith Carey' (hybridised by Mollie)
'Quick Flick'	'Autumn Gold' X 'Dido' (hybridised and raised by Ron – registered by Helen and Brian Coker)
'Coker's Summertime'	Unknown (unregistered)

Other registered cultivars from Mollie's seedlings or using Mollie's hybrids as a parent

'Waxeye'	Loderi group seedling (Mr & Mrs A G Holmes)
'The Bridge'	unknown seedling (Mr & Mrs A G Holmes)
'Lalique'	Loderi or *griffithianum* seedling (Mr & Mrs A G Holmes)
'Honey Glow'	Crest' X unknown (Mr & Mrs Lachie Grant)
'Ron Coker'	open pollinated Loderi (Mr Barry Sligh)
'Highfield Cream'	possibly *yakushimanum* seedling from USA seed (Mrs Joyce Clyne)
'Dainty Lass'	*yakushimanum* X 'Dainty' (Mr David Sumpter)
'Sarita Coker'	'Sarita Loder' X 'King of Shrubs' (Mr & Mrs A G Holmes)
'Ambergris'	'Dido' X 'Fawn' (Mrs Micky Kerr)
'Marshmallow'	Loderi Group seedling ex Ilam (Mr A G Holmes)
'Smoked Salmon'	'Lem's Cameo' X 'Coker's Pink' (Mr Barry Sligh)
'Ginger Rogers'	'Coker's Pink' X 'Lem's Cameo' (Mr Barry Sligh)
'Pelican'	'Coker's Pink' X 'Lem's Cameo' (Mr Barry Sligh)
'Cameo Pearl'	'Lem's Cameo' X 'Coker's Pink (Mr Barry Sligh)
'Cameo Frost'	'Lem's Cameo' X 'Coker's Pink' (Mr Barry Sligh)
'Pretty Jessica'	'Lem's Cameo' X 'Coker's Pink' (Mr Barry Sligh)
'White Petticoats'	'Lem's Cameo' X 'Whipped Cream' (Mr Barry Sligh)
'Regal Lace'	'Lem's Cameo' X 'Coker's Pink' (Mr Barry Sligh)
'Smarty Pants'	'Lem's Cameo' X 'Coker's Pink' (Mr Barry Sligh)
'Taunton Sunrise'	'Lem's Cameo' X 'Coker's Pink' (Mr Barry Sligh)
'Camembert'	'Crest' X 'Whipped Cream' (Mr Barry Sligh)

Dennis Hughes photographing a Coker hybrid at Heritage Park.

R. 'Waxeye'

MARK'S STORY
THE JURY LEGACY CONTINUES

Mark could perhaps be described as having chlorophyll running in his veins. He was the afterthought child in his family, quite a bit younger than his brothers. He remembers tagging along with his parents and visitors, listening in as they discussed plants around the Tikorangi garden in North Taranaki. “It was quite a lonely and isolated life in the country and I really wanted the social contact, even if it was with older people. It was only later that I realised what I learned in those early years.”

Mark was determined to head off to university, the first in his farming family to do so. It was not an easy path but he graduated with a Bachelor's degree in Social Sciences, majoring in Psychology. He enrolled in a post-graduate Diploma in Guidance and Counselling but withdrew half way through the year. “I was the youngest on the course and all the others were teachers with regrets. One would have liked to be a potter, another dreamed of running a country pub. I didn't want to get to my late 40s and look back with regret. By that stage, Abbie and I had already been married a couple of years and I went home and told her I wanted to withdraw from the course and follow some dreams.”

From there, he taught himself to draw from a book by John Ruskin, taught himself to turn wood to a high quality and then set out to learn how to propagate and from there, to build a nursery.

“When I started here, there was no nursery. Dad was a just a farmer and a gardener who liked to breed plants. He had taught himself the rudiments of propagation. I started to build the nursery from one wheelbarrow up and I set out to learn how to propagate and to grow plants commercially. It was a case of learning through trial and error. It has always surprised me how successful the nursery was.” Mark credits the access he had to his father's plant hybrids for giving him new material which made his nursery different from the rest. “Dad had pretty much stopped hybridising by then. It was only ever a hobby for him. I started more systematically to see how far I could push plant breeding. And as the plant breeding grew in range and scale, I had the nursery to cope with growing on the material.” He started with saturation coverage of a large plant of *Camellia pitardii* in an Urenui garden.

From an early stage, Felix made it clear that the garden he and his wife Mimosa had built would pass to Mark and his family. Mark and Abbie are demonstrably aware of what it means to be on a family property that is already supporting its fourth generation.

He is clear in his mind about the difference between the hybridising he does which has commercial potential and that which is solely aimed at producing better plants for their own garden. He is currently working with *Galanthus*, aiming for later-flowering cultivars which perform as well in Tikorangi conditions as does *Galanthus nivalus* 'S. Arnott'. He is continuing the efforts of his late father with *Cyclamineus narcissi*, looking for sterile selections that bloom from every bulb, as Felix Jury's 'Twilight' does. In the hellebores, improving garden performance and getting cultivars which hold their

blooms above the foliage are the aims, as well as looking for sterility if possible. In the arisaemas, he wanted to extend the colour range and the season and to get some hybrid vigour into *A. sikokianum* types. He is often to be found out and about with his magnifying glass and paintbrush.

The garden is always the star in Mark's mind. “This is a poor man's garden,” he says. “It was never made with a big budget and if we had to buy in all the plants that we want, we could never afford to keep it going, let alone expand as we do. To get masses of snowdrops to the point where they naturalise themselves, or to get a new 40m border of auratum lilies, we have to raise our own from seed. And when raising from seed, I often like to start with controlled crosses to see if I can get better outcomes, rather than just using open-pollinated material.”

R. 'Floral Sun'

Daphne 'Perfume Princess'

The garden is a treasure trove of plant material, some of which may go into commercial production at some stage in the future but which currently has no market. “We have some thrip-resistant rhododendrons with full trusses if that plant genus comes back into fashion. At the moment, the market is so small that there is no commercial advantage in releasing them.” The same is true of coloured and variegated cordylines and a range of camellias.

The creation of new cultivars with international potential has been a major focus. In the deciduous magnolias, Mark has named and released four out of many hundreds that he has raised. But he says he has the next three possibilities under trial. Of those released, the magnolia that he named for his father is his greatest pride. “It is what Felix was trying to get to – good colour in a large cup and saucer bloom, so I called it 'Felix Jury'. This one is doing really well internationally which is particularly pleasing. It has already been given an Award of Garden Merit from the RHS.”

The michelias are a source of frequent disappointment to Mark. “We have raised so many of them now and have a good range of new colours. But it is so difficult to get everything in one plant – clean colour, good size of bloom and plenty of them over an extended period, compact, bushy growth, easy to propagate and scented. Keeping the scent is the most elusive attribute of all.” Mark has named three so far, marketed under the 'Fairy Magnolia' brand, but there is a long way to go yet and he

Arisaema X hybrid

Range of *Michelia* seedlings

keeps persevering, often with several hundred new seedlings a year.

Amongst the camellias, Mark names his selection of 'Fairy Blush' as his personal favourite. He and Abbie have chosen to use it extensively for clipped hedging in their garden because of its long flowering season and its good habit of growth. 'Floral Sun' remains his pick amongst the rhododendrons.

Ironically, it is a daphne, a one-off plant from a speculative breeding effort, that may prove to be the most lucrative cultivar internationally. 'Perfume Princess' basically looks like an *odora* although it often flowers down the stem like *bholua*. It is the size of the flower, the vigour of the plant and the length of the flowering season that sets this plant apart from other daphnes. “It is just a brilliant plant to grow and a terrific nursery plant to produce,” Mark says. “That is not true of most daphnes which can be very difficult to produce in containers.” Both the local and international markets for a daphne eclipse the market for magnolias, even if the plant itself is less spectacular.

Mark with *Magnolia* seedling

“We stopped doing mailorder in 2003, stopped wholesale in 2008 and phased out retail after that. The phone calls and emails in search of plants haven't stopped in the time since but we were really glad to shut all that down. Abbie always described nursery work as being like factory work but in better surroundings. There was no fun in it but it enabled us to get to where we are today.” Mark is quietly proud of the fact that royalties on plant sales, particularly from overseas, are what enabled them to retire from the nursery trade and pursue their interests in the garden.

The garden is still expanding. They closed to the public 3 years ago and have been enjoying the freedom to experiment. “We'll open again at some stage, maybe in 2019, for the annual garden festival, at least, although we are unlikely to ever open again for extended periods during the year.”

Magnolia 'Honey Tulip'

Magnolia 'Fairy White' and pigeon

Camellia 'Fairy Blush'

RHODODENDRON SPECIES COLLECTIONS VERIFICATION

Doug Thompson

In the last two editions of this journal, both Marion MacKay and I have written articles discussing the subject of *Rhododendron* species conservation. These articles have highlighted information from the IUCN Red List of Rhododendrons that shows 25% of *Rhododendron* species are under threat of extinction in the wild and that over 50% are threatened to some degree.

With this in mind, in 2015, the Pukeiti Rhododendron Trust committed to expanding its representation of wild source Red List species and to enhance and promote the Pukeiti Rhododendron Collection as an *ex-situ* conservation collection. Beyond that a wider aim was set to coordinate a National *Ex-Situ* Conservation Plan for *Rhododendron* Species in New Zealand with the aims of:

- Assessing the range of *Rhododendron* species within New Zealand
- Assessing which of those are rare or endangered
- Assessing which types of rhododendron grow best in which areas
- Assessing and comparing the range of *Rhododendron* species within New Zealand against other international collections and consequently, to ascertain how the New Zealand Collection might best help with *Rhododendron* species conservation internationally.
- Propagating from rare and endangered species in NZ and disseminating the resulting plants throughout the country depending on where it is thought they will grow best.
- Supporting seed collection in the wild to broaden the range of provenance of rare or endangered species already in New Zealand and so enhance their conservation value.

The first of those aims underpins the others as it provides the raw data for the subsequent assessments and targeted propagation. In 2016 we enquired of different collection owners whether they would be interested in participating in the project and received lists of several collections. My role for the Trust has been to visit the participating South Island gardens to check and assess the species on their lists.

Having done that, I have been sending the reviewed lists to Marion Mackay at Massey University where she has been coordinating the project, compiling the amalgamated data set of all collections, analysing the data received and comparing it with the data from key major international collections which have also been acquired. Once all the data has been analysed, which is scheduled for completion in March next year, we will be able to develop the Conservation Plan.

In order to protect the garden owners' confidentiality, individual collections within the completed national list will be identified by a code only. Therefore the gardens discussed in this article will be referred to as Garden A, B, C or D.

For me the checking process has been very educational as it has exposed me to a wider range of species and their variations than I have seen previously. My faithful companions throughout the exercise have been 'Notes from the Royal Botanic Garden Edinburgh' Vol 39 No 1 and 2 and 'The Pocket Guide to *Rhododendron* Species' by McQuire and Robinson. With the help of these volumes, I have visited four South Island collections and verified or corrected their species lists.

The rhododendrons in these gardens have come from a variety of sources within New Zealand ranging from garden-origin plants from local nurseries and collectors and a mix of cultivated and wild-source material from enthusiast growers such as Brent Murdoch, as well as the Pukeiti Rhododendron Trust. Overseas sources included the American Rhododendron Society, Peter Cox's Glendoick Nursery in Scotland, and Wisley Garden in England which also provided mixed provenance material. Overall, as you would expect, garden origin plants were predominant but plants grown from wild-sourced seed were also well represented. Although species from all sources are important to have in the collection, it is the wild-sourced material representing a naturally occurring gene pool that adds extra conservation value.

Although I knew of most species in the collections, there were some I was not very familiar with and others that were new to me. Those that I did not know or that were unfamiliar to me, needed to be checked against pictures and botanical keys in the handbooks. Also, given the status of this project, even where I was reasonably certain of the identification from a simple visual inspection, I felt it important to double check using the handbooks. In the past, I have generally been able to depend on commonly used characteristics such as leaf shape, flower colour, indumentum and overall habit for identification. This foray into the world of diagnostic differences based on much smaller features, such as minute variation in scales and hairs on the leaves, was something of a revelation. So in this article I will describe the progress made so far on this species assessment stage of the National *Ex-situ* Conservation Plan, along with some of the new rhododendron

R. rex ssp. *fictolacteum*, a Near Threatened species from China. It is very common in international cultivation, has 4 New Zealand collection listings and no current New Zealand trade sources.

acquaintances I have made, and how the project has deepened my interest in a more technical approach to rhododendron identification.

I began the verification process in the 2016 flowering season and was able to check flower characteristics in Garden A, but by the time I received lists from, and visited the other gardens, flowering was mostly past. Therefore, although most could potentially be identified from leaf, bark and habit, a few could not be confirmed because diagnostic flower characteristics were unavailable.

Garden A has one of the larger collections in the South Island with 151 species, and opened my eyes to several previously unfamiliar species. In one bed there was a record of three species from Subsection Neriiflora: *R. mallotum, R. pocophorum* and *R. beanianum.* These all belong to the Haematodes Group within that subsection and are characterised by their thick brown or cinnamon indumentum on leaves that are usually broadly or oblong obovate –that is, broadening towards the leaf tip.

At first glance I thought a plant with dark green, thick, leathery leaves with deeply etched veins and thick woolly brown indumentum was *R. mallotum*. I was familiar with that species since acquiring some wild-sourced plants from Brent Murdoch in 2007. However, the plant in hand didn't look quite right, having more oblong rather than distinctly obovate leaves. Checking the list of other plant names for that bed, I found that the description for *R. pocophorum* fitted. The description for *R. pocophorum* also differentiated it by having glandular rather than tomentose (hairy) leaf and flower stalks. Interestingly, the leaf-stalks did seem rather hairy, but the stalks on its deep red flowers were definitely glandular. On closer inspection, I believe that the apparent leaf-stalk hairs might in fact be dried glands that had taken on a bristly appearance. This observation is supported by a comparison with the downy leaf-stalks and flower-stalks of *R. mallotum* growing at Dunedin Botanic Garden. Their relation, *R.*

R. mallotum, an Endangered species from China and Burma. It is relatively common in New Zealand collections and commercial trade, and also in international collections.

beanianum, is similar to the other two species but was relatively simple to confirm from its smaller leaves and dark brown indumentum. In another bed I searched for well-known *R. delavayi* and found only one plant that bore any resemblance to the species I know. However, although the leaves were lanceolate and had thin fawn indumentum, they were uniformly much narrower from leaf tip to leaf

stalk, smoother in appearance and without any characteristic broadening near the tip. It in fact looked like *R. delavayi* var. *peramoenum*. Garden B did have the narrow leaved form of *R. arboreum* listed but with leaves nearly one and a half times as wide as its narrow-leaved cousin, I considered this not to be *R. delavayii* var *peramoenum*, but simply *R. arboreum*. In fact *R.delavayi* var. *peramoenum* is noted as very rare in cultivation by the handbook, but the plants in Garden A are mature specimens and would have been planted well before 2009 when the handbook was published.

Finding such rare plants confirms the value of cataloguing the rhododendron species here and highlights the potential of the New Zealand collection as a whole.

Another potential rarity was labelled *R. viridescens,* which is in Subsection Trichoclada, and at first inspection I was ready to confirm it. Like several other Trichoclada species it had elliptic to oval leaves and small yellowish green flowers. However, *R. viridescens* tends not to have glaucous undersides to the leaf and has bristles on its branchlets, leaf and flower-stalks, whereas the one in question had glaucous leaf undersides, and bristles only on the calyx, which could match *R. caesium*, noted as extremely rare in cultivation. Some species in Garden A appeared to be correctly identified until the leaf was turned over and examined. Specimens labelled *R. clementinae* and *R. sphaeroblastum,* both from Subsection Taliensia, which should have thick spongy indumentum – *R. clementinae* fawn to white and *R. sphaeroblastum* rust to brown – were both smooth on the underside. *R. degronianum* in Subsection Pontica, also lacked the necessary indumentum for its species, so these were more straightforward subjects to assess and cross from the list as possible hybrids.

Pink flowered *Rhododendron oreodoxa* var. *fargesii* in Subsection Fortunea, required closer inspection. Both the variety *fargesii* and the straight species *R. oreodoxa* have variably pink corollas and glabrous oblong-oval leaves. The presence of glistening little protrusions on the ovary, however, agrees with the varietal status. The protrusions are glands, which do not appear on the ovary of *R. oreodoxa.*

Gardens A and B both had specimens of *R. arizelum* from Subsection Falconera. This is one of the two large-leaved subsections in the genus and contains half the large leaved species whilst the other half fall into Subsection Grandia. The difference between the two groups is in the cup shaped hairs in the indumentum of the Falconera rhododendrons, which do not appear on the Grandia species. In Subsection Falconera, *Rhododendron arizelum* used to be a subspecies of *R. rex* and is similar to *R. rex* ssp. *fictolacteum*. *R. arizelum* can have more cinnamon coloured indumentum on leaves that may not taper to the base, whilst *R. rex* ssp. *fictolacteum* has more rust coloured indumentum and tapering leaves. Intriguingly, McQuire and Robinson state that *R. arizelum* is no*t* 'rugulose', (rugulose = somewhat wrinkled) whilst Peter Cox describes it as 'rugose' (wrinkled). However, based on overall leaf shape and indumentum colour one can make a reasonably safe confirmation of one or the other species. However, absolute confirmation depends on high magnification of the indumentum on *R. arizelum*. Compared with that of *R. rex* ssp. *fictolacteum*, the cup shaped hairs of *R. arizelum* are strongly fringed. I do not have a microscope with sufficient magnification to allow identification at that level, so for the specimens in question I have given the benefit of the doubt for now.

One species growing in two of the gardens visited, as well as in the Dunedin Botanic Garden, has presented something of a puzzle. Checking the plants in Garden A and B labelled as *R. longipes*, they looked very much like one labelled *R. argyrophyllum* ssp. *omeiense* in Dunedin Botanic Garden. The plants in all three gardens have silvery white indumentum which is correct for *R. argyrophyllum*, whereas both *R. argyrophyllum.* ssp. *omeiense* and *R. longipes* have fawn indumentum. The descriptions for both *R. longipes* and *R.argyrophyllum* ssp. *omeiense* have strong similarities – the former has oblanceolate leaves, which means they are lance shaped and broaden near the tip, whilst the leaves on the latter broaden near the tip but are overall, elliptic in shape, that is, elliptic to oblanceolate. *R. longipes* has a distinctly tapering leaf that comes to a point at the tip, whereas *R. argyrophyllum omeiense* has a less tapered, but still pointed leaf tip. In general the leaf on *R. argyrophyllum* is larger, growing from 6-16cm x 1.8-6cm, but *R. longipes* foliage grows from 5-11cm x 1.5-3cm. There are more distinct differences in flower colour and shape, but if not in flower, young plants of one species, with moderately sized leaves, could easily be mistaken for the other. Consequently it is not surprising that the wrong label can arrive with seed and follow the resulting plants for years in the garden.

Those plants labelled *R. longipes* in Gardens A and B appeared identical to the specimen in the Dunedin Botanic Garden. Their new growth has silvery white indumentum which becomes creamier in colour on mature foliage and may have been mistaken for fawn, but cannot really be described as such, so all are *R. argyrophyllum* ssp. *argyrophyllum*.

In Garden B the species list contained *R. pseudochrysanthum* which is in Subsection Maculifera. The overall characteristics for that subsection are shrubs or trees with rough bark, usually with patchily indumented (floccose) branchlets, smooth, hairless leaves, other than the floccose underside mid-ribs and floccose leaf stalks. The new growth on *R. pseudochrysanthum* is tomentose but that usually disappears as the leaves mature.

On the specimen in Garden B the tomentose layer was still fully present in April, but has since faded except for a few vestiges on some smaller leaves. On the underside of the leaves though, the indumentum is persistent raising doubts about its identity. While checking a garden in Southland, I mentioned this heavily indumented specimen and was told that Southland rhododendron enthusiast, Alistair Blee had at one stage imported crosses of *R. pseudochrysanthum* and its more

indumented relative, *R. pachysanthum* from the American Rhododendron Society and that those crosses had been propagated and sold around the South Island. I suspected that the specimen in Garden B might be one of Alistair Blee's ARS hybrids, but in discussion with the garden owners, was told that their specimen was purchased in the 1980s before Alistair Blee developed his interest in rhododendrons. However, Peter Cox cites forms with persistent indumentum and so it appears that the specimen in Garden B is one of those.

Garden C contained two plants that could not be confirmed. One, labelled as *R. dendricola*, from Subsection Maddenia looked as if it could be correct with leaves tapering to the base and a short drip tip at the apex. However, a more detailed requirement was that the calyx at the base of the flower should be disc-like or slightly lobed. Although the corollas had fallen away, the calyces remained, and on this plant, were in fact, quite strongly lobed. So that plant was left with a question mark. The other was labelled *R. grande* Kingdon Ward selection. Many of us are familiar with *R. grande* and its oblong leaves broadening at the tip and with its silvery to fawn, shiny, thin, plastered indumentum. This specimen was much broader across the middle and with quite woolly grey-white indumentum raising the suspicion that, with those characteristics, this was an *R. macabeanum* hybrid.

Garden D is where the hand lens came into its own because this was predominantly a collection of dwarf rhododendron species. For several of these, amongst the features to check were the size and density of the scales on the underside of the leaf. On *R. cephalanthum* ssp. *crebreflorum* the presence of scales on the leaf bud helped suggest its identity. Some, such as *R. pemakoense* are relatively easy to distinguish with glaucous leaf under sides densely covered in golden scales that often turn dark brown. One species stood out, with relatively elongated leaves that broaden towards the tip and are fringed by long bristly hairs. Golden scales on the underside point to this being *R. hirsutum*.

R. oreotrephes a species from Yunnan growing at Heritage Park

Apart from helping identify the species, scales can also add to the plant's beauty and even texture. Where indumentum protects leaves from desiccation by trapping water vapour transpired by the leaf close to the surface, scales perform the same function by limiting the release of water vapour from the leaf. Young leaves are particularly prone to desiccation so, as with the indumented species, the new foliage can emerge very densely covered in scales. Consequently, although the effect is not as alluring as the felted new growth on species such as *R. pseudochrysanthum*, the new foliage on some scaly species still adds another dimension for appreciation. The mature foliage on *R. primuliflorum*, is dark green, but the younger growth sports leaves so densely covered in scales that they appear greyish yellow. Not only do they give a variation in colour, but the profusion of scales also adds an almost sandpapery appearance to the new leaves which provides a satisfying contrast with the smooth older ones.

This handful of species from the four gardens I visited shows some of the diverse features to be checked in the process of verifying rhododendron species' authenticity. More than that though, it also reveals some of the more technical points required for distinguishing between similar species that have made this exercise such a stimulating one to be part of.

The four collections I visited ranged from 26 to 151 species and have provided a significant and valuable contribution to the National Rhododendron Species Conservation Project. The garden owners have been a pleasure to work with, sometimes over two or three visits, and they have all made every effort to provide accurate records. These gardens are, of course, simply the South Island participants in the project and several North Island gardens are also being checked for their inclusion in the project.

As I said at the beginning, the aim is to have analysis of the amalgamated list completed by March 2018, ready to form a basis for the development of the Conservation Plan. However, any gardeners who wish their collections to be part of the project after this time are still welcome to submit their lists, which will help refine and strengthen the strategy as the plan develops.

DEVELOPMENT OF A NEW ZEALAND *EX-SITU* CONSERVATION STRATEGY FOR RHODODENDRON

PROJECT REPORT TO THE END OF JUNE 2017

Dr Marion MacKay

In last year's journal I outlined a new project to develop an *ex-situ* conservation strategy for *Rhododendron* in New Zealand, to be conducted over the period October 2016 to the end of March 2018 (MacKay 2016) and with contributions from members of Pukeiti Rhododendron Trust and New Zealand Rhododendron Association (NZRA). The purpose of this article is to report on progress up until the end of June 2017. An earlier research project (MacKay et al. 2017) established that New Zealand holds a significant range of *Rhododendron* species, including rare and threatened species (otherwise known as Red List species), and indicated that our collections may have a useful contribution to *ex-situ* conservation of species. However, *ex-situ* conservation is only effective when there is sufficient genetic representation of each species, requiring a range of different, wild-collected, accessions of each species to be held in collections. While we have an extensive set of species in New Zealand, do we have the range of wild-collected material that is required to represent those species? How many accessions of Red List species do we hold, and do we have wild-collected material of those species? Where are the collections held? The aim of the *ex-situ* project is to answer these questions by (i) gathering data on *Rhododendron* taxa in cultivation in collections in New Zealand and internationally, (ii) analysing those data for a range of factors, and (iii) proposing an *ex-situ* conservation strategy for New Zealand. This strategy will include elements such as examining the range of wild-collected material that is present, determining which species and accessions should be propagated, and dispersing propagated material to several sites. The first phase of the project is the data gathering phase and the objectives for the stages reported here were to update the Pukeiti data, obtain data from between four and six New Zealand collections, and obtain data from one international collection.

I am pleased to report that these objectives have been completed, along with some additional items. Firstly, the Pukeiti data have been reviewed and accessions checked using the Taranaki Regional Council (TRC) website (TRC 2017) and through a follow-up meeting with Lara Coxhead (TRC records officer) on 14 March 2017. Lara indicates that the web site lists 99% of the collection and the remainder are cuttings or young plants that are as yet too small to be accessioned. Species in the Pukeiti collection have been identified by Graham Smith who has worked with Lara to locate each plant in the garden and associate it with the correct source data. Secondly, data from six New Zealand collections have been obtained, including five from the South Island and one from the North Island. The identity of plants in the South Island has been checked by Doug Thomson while Sue Davies did the identification for the North Island collection; this process is particularly valuable as it clarifies the identity of the plants. It can also generate some surprises; for example, Doug was also able to confirm that *R. rufum* is present in one collection and even though, in conservation terms, it is a common species this is the only New Zealand record so far of that species.

The third objective for this period was to obtain data from one international collection; likely candidates were either the Rhododendron Species Botanical Garden in the U.S. or the Bremen Rhododendron Garden in Germany. (It should be noted that the research database already includes data from Botanic Gardens Conservation International (BGCI 2017), the largest global database of plants in cultivation, and Royal Botanic Gardens Edinburgh and Kew (RBGE 2017, RBGK 2015) which were identified as the largest *Rhododendron* collections in a 2012 study (BGCI 2012)). It

Dr Marion MacKay investigating *R. niveum* at Heritage Park.

R. genestierianum, a Near Threatened species from China and Burma. It has 4-5 New Zealand collection listings and no current New Zealand trade sources, although it is relatively common in international cultivation.

R. scopulorum is a Vulnerable species from China. It currently has only 2 New Zealand collection listings and no current New Zealand trade sources, although it is relatively common in international cultivation.

transpires that four international sets of data have been obtained and added to the database. These are:

- Data on *Rhododendron* species at Wespelaar Arboretum, Belgium (*http://www.arboretumwespelaar.be/EN/*, accessed 05.01.2017), which was identified as the third most extensive *Rhododendron* collection world-wide (after Edinburgh and Kew) in the 2012 survey (BGCI 2012).
- The *Rhododendron* listing from the German Genebank database which contains a listing of plants in cultivation in Germany (*http://www.bundessortenamt.de/internet30/index.php?id=3*, accessed 06.01.2017).
- A list of *Rhododendron* species in cultivation in Australia which was developed by Simon Begg (Begg 2009).
- A *Rhododendron* data-set from the Rhododendron Species Botanical Garden in the U.S. (Hootman 2017).

While all the international data is valuable in building the data-set, the Rhododendron Species Botanical Garden (RSBG) is of particular interest. The project objectives identified the RSBG as a key collection, and I was fortunate to establish a collaboration with the Director, Steve Hootman, in the first months of 2017. Readers may be aware that in late 2016 the RSBG came under threat because of a possible land sale; in the face of this threat it would be useful to quantify the global significance of the RSBG collection (the RSBG had not participated in the 2012 global survey (BGCI 2012) so its position in relation to other international collections had not been quantified). To this end, Steve Hootman prepared a data-set for the RSBG collection (Hootman 2017) and I then added it to the research database and undertook an analysis to compare RSBG to the collection at Edinburgh, which had been identified as the largest collection globally in 2012 (BGCI 2012). The resulting publication (MacKay & Hootman 2017), which is additional to the project objectives, reveals that the RSBG collection (650 taxa) is larger than that at Edinburgh (616 taxa), is primarily comprised of wild-collected material, and contains 21 taxa that are not currently recorded in cultivation anywhere else. At the same time, the two collections have many complementary features, e.g. they have similar numbers of wild-collected Red List species, and they have complementary strengths with RSBG having a larger collection of subgenus *Hymenanthes* while Edinburgh has a larger collection of subgenus *Vireya*. In due course a second analysis, also additional to the project objectives and aiming for publication in 2018, will compare the RSBG to the 'world' collection of 844 taxa 'in cultivation' (MacKay et al. 2017).

Although the data gathering phase is still in progress, the data so far suggests that some species in New Zealand collections are more significant than others. Considering some of the Red List species, *R. mallotum* is more common in cultivation (18 international records at BGCI, 8 New Zealand listings) than *R. scopulorum* (12 international records at BGCI, two New Zealand listings), indicating that we should give priority to propagation of *R. scopulorum*. In another example, *R. griersonianum*, *R. genestierianum* and *R. rex* ssp. *fictolacteum* all have 4-5 New Zealand collection listings; however *R. rex* ssp. *fictolacteum* is much more common in international cultivation (48 records at BGCI) and would take a lower priority in a New Zealand propagation programme than the other two species. *R. pseudochrysanthum* is also common in international cultivation (37 records at BGCI) and has more New Zealand listings than the previous examples (9-10 listings); this species would also take a relatively low priority for propagation. In contrast, *R. suoilenhensis* has three New Zealand collection listings and zero international records at BGCI (although it is in cultivation at the Rhododendron Species Botanical Garden (Hootman 2017); the RSBG data are not part of the BGCI records). This species should have a high priority in a New Zealand propagation programme because it is scarce in cultivation internationally and we have wild-sourced material. These are just some examples from the current data-set; as the data-set develops and is analysed a series of data summaries, exploring various factors, will be developed.

Another interesting aspect that has been revealed from the data-set so far is that of historical records and change in collections over time. For example, examination of the Pukeiti data shows that there is a gap between the Pukeiti historical records and the set of taxa that are currently extant in the collection. Indeed Lara Coxhead raised the issue of vireya species which are no longer at Pukeiti (for various reasons), and the desirability of finding other collections that hold these species and re-acquiring material. Unfortunately this is likely to be difficult as there are seldom any commercial trade sources (MacKay et al. 2017) and Pukeiti was often the only site holding those species; however, some species may still be extant on other sites through plant sales to members in years gone by. Old newsletters, bulletins, 'plants for members' lists or other publications may also contain information on where some of these species might be found; a similar search of documents in the NZRA archive proved to be very useful for earlier studies (MacKay et al. 2017; MacKay 2017). For Pukeiti the TRC has begun the task of archiving relevant documents and these will eventually be available through an appropriate web site.

Historical records, from Pukeiti and NZRA or other sources such as old nursery lists, are important in establishing the 'history' of a species in New Zealand and also in identifying species that have been present but which have no current collections or trade source. In my other article in this journal I have outlined a group of 93 species that historical publications indicate have been in New Zealand in the past (some having been imported several times) but which have now disappeared from view (MacKay 2017). It is likely that some of them are still present somewhere; discovering where is the challenge and if members are able to help with this search I would be pleased to hear from you. Similarly, if any members

R. griersonianum is a Critically Endangered species from China and Burma. It is common in international cultivation, has 4-5 New Zealand collection listings and no current NZ trade sources.

R. pseudochrysanthum is a Vulnerable species from Taiwan. It is common in both international cultivation and also in New Zealand where it has 9-10 collection listings. There are no current New Zealand trade sources.

are studious collectors (hoarders!) of old nursery catalogues or sales lists I would also be pleased to hear from you as these can be very informative.

Meanwhile, the *ex-situ* project continues and the next stages (July 2017 to March 2018) involve three more objectives. These are:

Obtain and process data from the second international collection [a task that has already been completed], and any remaining New Zealand collections: 30 September 2017;

Complete first stage of data analysis (conservation status, geographic and taxonomic groups): 30 November 2017; and

Have remaining factors analysed (characteristics and distribution of collections), and conservation plan developed and report completed: 30 March 2018.

At present everything is on track to achieve these objectives and I expect to be reporting on these aspects in the 2018 journal. Once these aspects are completed we will move into the next phase, where we develop a propagation plan and investigate the housing of certain groups of species on appropriate sites. For example, the data so far suggests that the dwarf alpine species are not particularly well catered for in collections and it may need a concerted effort to accumulate them on a designated site. When we get to that phase you may hear from us as we seek out propagating material of particular species.

In summary, the New Zealand *ex-situ* conservation project is progressing according to plan. If any members wish to participate or to find out more about the project I can be contacted at *m.b.mackay@massey.ac.nz*.

Acknowledgements

The New Zealand *ex-situ* Strategy for *Rhododendron* Project has been funded by Pukeiti Rhododendron Trust and I thank them for their support of this project. Plant identification has been done by Graham Smith, Doug Thomson, and Sue Davies; these contributions add great value to the quality of the data-set. I also thank collection holders who have shared their data with us, including Taranaki Regional Council for access to the Pukeiti data, and also the owners of various private collections. This project has also used several international databases and I am grateful for the opportunity to access those databases. The cooperation of members of Pukeiti, the New Zealand Rhododendron Association, and TRC staff at Pukeiti is gratefully acknowledged.

Bibliography

Begg S. 2009. *Import of rhododendron seed into Australia (Current 3 March 2009)*. Unpublished report. S. Begg, Melbourne.

BGCI. (Botanic Gardens Conservation International) 2012. *Global survey of ex-situ Rhododendron collections.* Botanic Gardens Conservation International, (Richmond) UK. https://www.bgci.org/plant-conservation/rhododendron_survey/

BGCI. 2017. *Botanic Gardens Conservation International: Plant Search*. Online at: *https://www.bgci.org/plant_search.php.* Searched on 06.01.2017.

Hootman SE. 2017. *Inventory of the Rhododendron collection at the Rhododendron Species Botanical Garden, March 2017*. Unpublished collection inventory, Rhododendron Species Foundation, Federal Way, USA.

MacKay MB. 2017. Uncommon *Rhododendron* species in New Zealand: are there any at the bottom of your garden? *The New Zealand Rhododendron* 5: x-x.

MacKay MB. 2016. Development of an ex-situ conservation plan for *Rhododendron* species in New Zealand. *The New Zealand Rhododendron* 4: 26-27.

MacKay MB, Hootman SE. 2017. Examining the significance of the *Rhododendron* collection at the *Rhododendron* Species Botanical Garden (Federal Way, Washington State, USA). Commissioned Report to the Board of Directors of the *Rhododendron* Species Foundation (Federal Way, USA), June 2017. Massey University, New Zealand.

MacKay MB, Smith GF, Gardiner SE. 2017. New Zealand collections of Rhododendron as a resource for ex-situ conservation. *New Zealand Journal of Botany* *http://dx.doi.org/10.1080/0028825X.2017.1291434*. Published online on 2 March 2017.

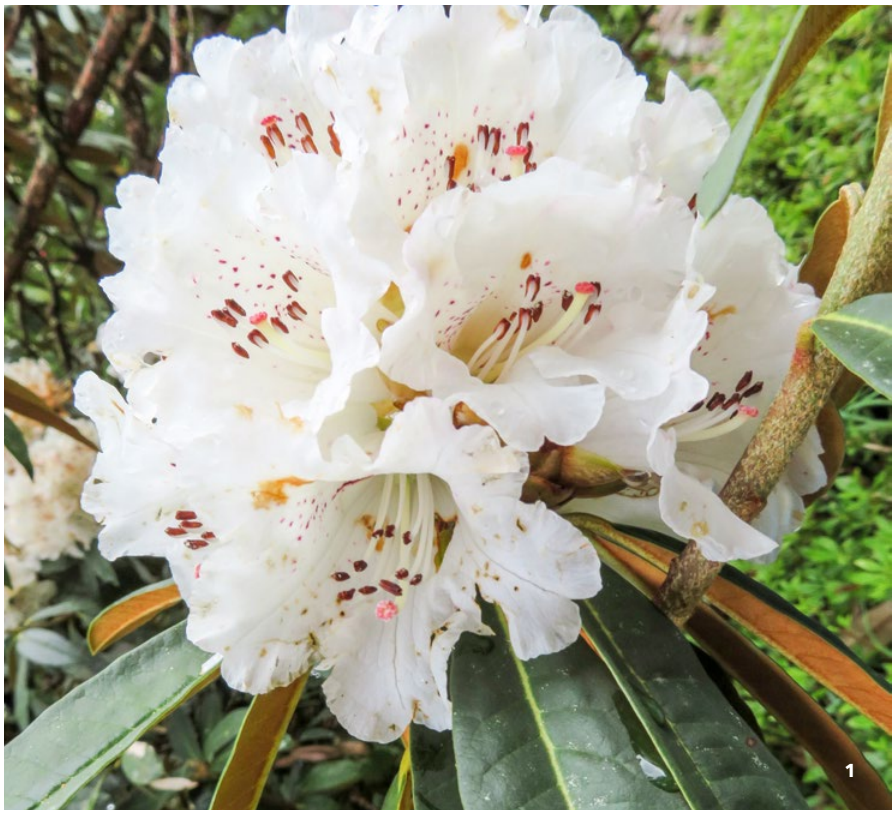
RBGE. 2017. *Royal Botanic Gardens Edinburgh: Catalogue of the Living collections*. Available from *http://elmer.rbge.org.uk/bgbase/livcol/bgbaselivcol.php*. Searched 11 January 2017.

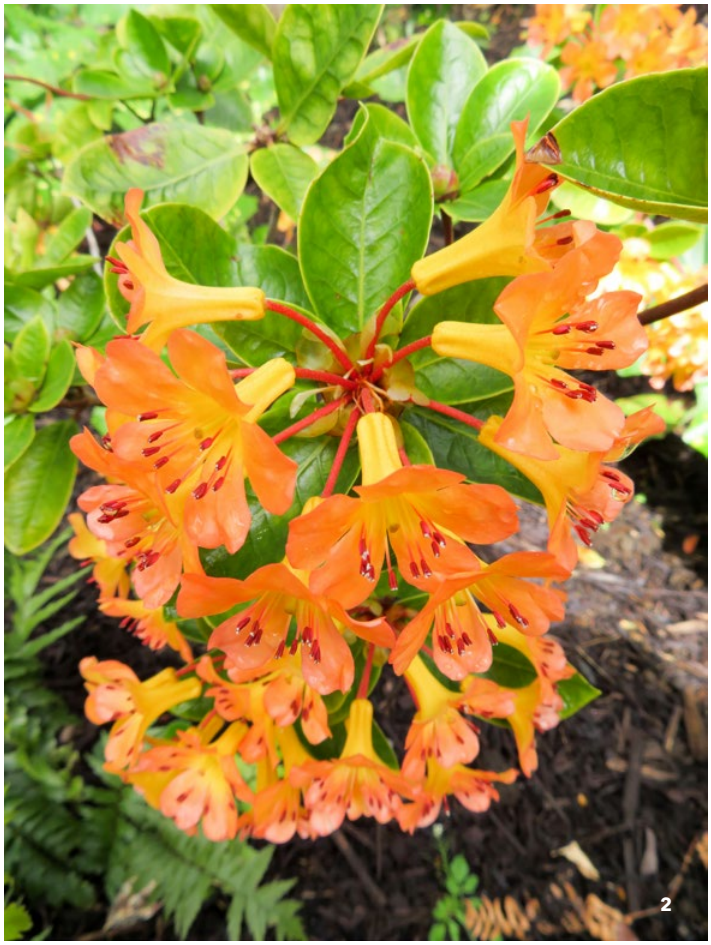
RBGK. 2015. *Electronic Plant Information Centre: Living Collections*. Available from *http://epic.kew.org/searchepic/searchpage.do. Searched 29 October 2015.*

(TRC) Taranaki Regional Council. 2016. *Pukeiti Plant Explorer. Online database of the plant collection at Pukeiti Gardens*. Available at: pukeitigardenexplorer.org/taxalist-R.aspx. Searched on 25.11.2016.

SOME SPECIES RHODODENDRONS AT PUKEITI

Photographed on the same day at the end of October 2017.






6

1. *R. aboreum* White Form
2. *R. magregoriae* var *magregoriae*
3. *R. degronianum*
4. *R. campanulatum* Knaphill form
5. *R. williamsianum*
6. *R. hyperythrum*
7. *R. hippophaeoides*
8. *R. suiolenhensis* is from Vietnam and is a Data Deficient species. This species has 3 New Zealand collection listings and no New Zealand trade sources. It also has zero listings at BGCI therefore the New Zealand material of this species is quite important internationally.


7


8

UNCOMMON RHODODENDRON SPECIES IN NEW ZEALAND: ARE THERE ANY AT THE BOTTOM OF YOUR GARDEN?

Dr Marion MacKay

One of the components of the New Zealand *Rhododendron ex-situ* project (MacKay 2016) is to investigate the range of taxa that is present in New Zealand, including taxa that have been here in the past and which may or may not still be extant. It is likely that some of these taxa did not thrive and simply died out; however, it could be that there is still live material tucked away in someone's back yard. The purpose of this article is to draw your attention to these 'might still be here somewhere' taxa in the hope that we may uncover some useful plant material.

This group of taxa was identified through an analysis of my *Rhododendron* research database (MacKay et al. 2017) which is based on a data-set of all *Rhododendron* taxa (species, subspecies and botanical varieties) as according to Chamberlain et al. (1996), Fang et al. (2005), Gibbs et al. (2011) and Argent (2015). Records of taxa 'in cultivation' internationally have been obtained from Botanic Gardens Conservation International (BGCI 2017), Royal Botanic Garden Edinburgh (RBGE 2017), and Royal Botanic Gardens Kew (RBGK 2015). With 1,363,723 entries of 496,775 taxa from 1147 botanic gardens the BGCI database is the largest database of plant species in cultivation globally (bgci.org, accessed 02.05.2016), and Edinburgh and Kew were identified as the largest *Rhododendron* collections world-wide in 2012 (BGCI 2012). The portion of the dataset which describes the taxa that are, or have been, in New Zealand has been built from a range of sources which include:

- Historical and current data for Eastwoodhill (MacKay 1996; Eastwoodhill Arboretum 2016), Pukeiti (Smith 1983; PRT [undated], 2005, 2008; TRC 2016), Heritage Park (Smith 1983; Heritage Park Management Committee 2001), Victoria Esplanade (MacKay 2014), Isel Park (Smith 1983).
- Species lists for ten private New Zealand collections (surveyed 2010-2015) which have been contributed by members of NZRA and Pukeiti.
- Species lists for six additional private New Zealand collections (surveyed 2016-2017) which have been obtained as part of the *ex-situ* project.
- A search of online herbarium listings in New Zealand (Allan Herbarium [undated], Auckland War Memorial Museum [undated], Museum of New Zealand Te Papa Tongarewa [undated], National Forestry Herbarium [undated]).
- A search of the journals and newsletters of the New Zealand Rhododendron Association (years 1956-2016) and Pukeiti Rhododendron Trust (years 1995-2016).
- A 2015 search of the Plant Biosecurity Index at the New Zealand Ministry for Primary Industries (MPI [undated]), which contains a partial listing of introduced flora in New Zealand (Dickson 2009).
- A 2015/16 survey of plant lists from 48 New Zealand nurseries that grow *Rhododendron* (MacKay et al. 2017), with those data being added to historical data (Smith 1983; MacKay 1996; Gaddum 1999, 1999a).
- The data are held in a database which includes fields such as scientific name, authority, synonyms, geographic origins, taxonomic section, international records at BGCI or the other international sites, presence in New Zealand collections, literature evidence for presence in New Zealand (with citation), presence in New Zealand herbaria, and presence in commercial trade in New Zealand (previously and currently).

Many taxa are common in collections and some species have been available in commercial trade at various times, although the availability of species in commercial trade has declined over time (MacKay et al. 2017). Another group of taxa, which is the subject of the current article, has been present in New Zealand in the past but no longer has any current collection or trade

R. sanguineum var. *haemaleum* at Craigowen Garden, Scotland.

presence. Recognising that commercial trade is only a partial indicator of the range of species that are in New Zealand (MacKay 1996; Dawson 2015), and that the New Zealand collections data is under constant development, it is likely that some of these less common taxa are 'hiding at the bottom of someone's garden' – if only we knew where that was!

Table 1 lists 93 taxa for which there are no current New Zealand trade sources or collection records, but which have been in New Zealand in the past. For each taxon in Table 1 the name and commonly used synonyms are listed along with the country of origin, subgenus, and literature or other source that indicates previous presence in New Zealand. The Red List status of each taxon is also included (Gibbs et al. 2011, Argent 2015); these ratings indicate the level of threat to the species in its wild habitat and (in decreasing order of threat) are: Extinct, Critically Endangered, Endangered, Vulnerable, Near Threatened, and Data Deficient (for taxa where a lack of data precludes a more definitive rating). Least Concern is used for those taxa that do not have any current conservation issue. Although the rarer (Red List) species are of particular interest, it is also useful to find plant material of species that are not rare in their home habitat but which are of infrequent occurrence in New Zealand. For example, *R. cuneifolium* var. *cuneifolium* is not a rare species but it has no current listings in New Zealand (although it has been imported three times in the past), and if there was any material still extant it would be useful to add it to an appropriate collection.

Are there any particular characteristics of the taxa listed in Table 1, such as country of origin or taxonomic group? The majority of taxa (53) are of Chinese origin, which is perhaps not surprising as about half of the genus originates in China anyway. The next largest group is 12 taxa from Burma, 9 from each of Japan and Borneo (Indonesian and Malaysian Borneo), followed by 7 or fewer taxa from other countries. When subgenus is considered, subgenera *Hymenanthes* (32 taxa) and *Rhododendron* (31) dominate, with fewer taxa from subgenera *Vireya* (18 taxa), *Pentanthera* (6), *Tsutsusi* (5) and *Azaleastrum* (2).

Examination of Red List status shows that 43 taxa in Table 1 are 'Least Concern' and a further 9 were not assessed in the recent assessments (Gibbs et al. 2011; Argent 2015) so their current conservation status is unknown. The remaining 40 taxa are under some degree of threat, with 2 assessed as Endangered, 24 as Vulnerable, 5 as Near Threatened, and 11 as Data Deficient. About a quarter of the taxa (22) were either wild-collected or propagated from wild-collected material. Ten of wild-collected taxa were Red List taxa

including *R. abietifolium* (Adams expedition to Sarawak in 1990 (NZRA 2003a)), *R. acuminatum* (Blumhardt expedition to Mt Kinnabalu in 1979 (NZRA 2003a), and also the Adams expedition to Sarawak in 1990 (NZRA 2003a)), *R. martinianum* (Kingdon Ward expedition of 1953 (NZRA 1954)), *R* X *nervulosum* (Blumhardt expedition to Mt Kinnabalu in 1979 (NZRA 2003a)), *R. radians* var. *pubitubum* (Adams expedition to Sarawak in 1996 (Adams 1996b)), *R. salicifolium* (Adams expedition to Sarawak in 1982 (NZRA 2003a)), *R. schortechinii* (Adams expeditions to Malayan Peninsula in 1984 (NZRA 2003a) and 1990 (Adams 1990)), *R. vanderbiltianum* (Binney expedition in 1997 (Binney 1998)), *R.* X *variolosum* (Adams expedition to Sarawak in 1992 (NZRA 2003a)), and *R. wrayi* (Adams expeditions to the Malayan Peninsula in 1984 and 1986 (NZRA 2003a). Wild-collected material is important for *ex-situ* conservation and if any of the aforementioned accessions are still extant it would be particularly useful to locate some material.

As is apparent from the previous list, the late Keith Adams (Adams 1990, 1996a, 1996b; NZRA 2003a) and the late Os Blumhardt (Ballard 2015; NZRA 2003a) were key people in *Rhododendron* collecting in the 1970s to the 1990s. Prior to that time another key importer was Douglas Cook of Eastwoodhill. He brought in many *Rhododendron* taxa in the 1940s to 1960s; however most were from cultivated sources, primarily Hillier and Sons Nursery in England (MacKay 1996). Pukeiti, and Graham Smith (NZRA 1979, 1987, 2003a, 2003b; Smith 1984, 1986), also brought in a number of the species discussed in this article; however these have since been lost from the Pukeiti site (or sometimes never got started in the first place as seed propagation or growing-on was unsuccessful). Some of the other sources listed in the Table include collections that were extant some years ago; do any of these still exist and if so what is left on those sites?

The final source of information in Table 1 is the Ministry of Primary Industries (MPI) Plant Biosecurity Index (MPI [undated]). Several *Rhododendron* species that otherwise have no current or previous trade or collection listing are listed on the Biosecurity Index, indicating that they are in New Zealand somewhere but are yet to be discovered in the current *Rhododendron* research. Conversely, there are a number of other species which the literature sources show have been present in New Zealand in the past, but which are not listed by MPI (in Table 1 these are indicated by the notation MPI=N). In some instances the absence from the MPI list may be because of nomenclature changes, e.g. species that were previously classified under *Azalea, Ledum*, and *Menziesia* which are now included in *Rhododendron*. Given that the MPI list is only a partial indicator of the range of taxa in cultivation (Dickson 2009, Dawson 2015) the aforementioned literature evidence could be useful in supporting the eventual listing of those species.

Developing a comprehensive and accurate listing of *Rhododendron* taxa in New Zealand is a key component of our forthcoming *ex-situ* conservation strategy and the project team hopes that, over time, we will improve our knowledge of the genus in New Zealand. Do you have any of the taxa described in this article in your garden? These taxa are particularly scarce in New Zealand and the *ex-situ* project team would be very pleased to hear from you if you are prepared to share some propagating material. We hope that we will be able to uncover some of the less-common taxa that are present in New Zealand and multiply them and disperse them to several collections, all the while adding to the overall conservation effort.

R. anwheiense at Edinburgh

R.buxifolium at Edinburgh

R.caesium at Craigowen garden, Scotland

Table 1. List of Rhododendron species that have previously been in New Zealand but which have no current collections or commercial trade listing.

Species	Subgenus	Origin	Red List	Notes
abietifolium	Vireya	Borneo (Sarawak)	Vu	Collected by Keith Adams in North Sarawak in 1990 (NZRA 2003a, p30). MPI=N.
acuminatum	Vireya	Borneo (Sabah)	EN	Collected by Os Blumhardt from Mt Kinnabalu in 1979 (NZRA 2003a, p28). Collected by Keith Adams in North Sarawak in 1990 (NZRA 2003a, p30). MPI=N.
alutaceum var. *russotinctum* (*R. russotinctum*)	Hymenanthes	China	DD	Listed by MPI as *R. russotinctum*. MPI=Y.
amagianum	Tsutsusi	Japan	EN	Listed by Smith (1983). MPI=Y.
anwheiense (*R. maculiferum* ssp. *anwheiense*)	Hymenanthes	China	LC	Listed by MPI as *R. anwheiense*. MPI=Y.
araiophyllum	Hymenanthes	China, Burma, Vietnam	LC	Listed by MPI. MPI=Y.
augustinii ssp. *hardyi* (*R. hardyi*)	Rhododendron	China	Not assessed	Species listed by MPI. Listed by Smith (1983). MPI=Y.
augustinii ssp. *rubrum* (*R. bergii*)	Rhododendron	China	Not assessed	Listed by MPI as *R. bergii*. MPI=Y.
baileyi	Rhododendron	Bhutan, China, India	LC	Imported by Pukeiti from the Species Foundation (SF75/35) in 1979 (NZRA 1979, p25). Imported by Douglas Cook from Hillier & Sons (England) in 1950, 1960, 1962 (MacKay 1996). MPI=N.
bainbridgeanum	Hymenanthes	China	NT	MPI=Y. One collection listing in 2010.
bloemenbergenii	Vireya	Sulawesi	LC	Introduced to cultivation in NZ by Keith Adams in 1996 (Argent 2015, p339). MPI=N.
brachyanthum	Rhododendron	China	Vu	Thomson collection of *Rhododendron*, Stratford, in 1944. (Yeates 2011, p58). MPI=Y.
brachycarpum ssp. *fauriei* (*R. faurei*)	Hymenanthes	Japan, Korea Sth	LC	Sales list in 1963 (NZRA1963) and 1965 (NZRA1965). MPI=Y as *R. faurei*.
buxifolium	Vireya	Borneo (Sabah)	LC	Collected by Os Blumhardt from Mt Kinnabalu in 1979 (NZRA 2003a, p28). MPI=Y.
caesium	Rhododendron	China	NT	*R. caesium* F26798 (ex RBG Edinburgh) imported by Pukeiti from the Species Foundation (SF76/134) in 1979 (NZRA 1979, p25). MPI=N.
callimorphyum var. *myiagrum* (*R. myiagrum*)	Hymenanthes	China	DD	*R. myiagrum* imported by Pukeiti from Species Foundation in1983-1985, lot 66/541 (Smith 1986, p63). MPI=Y for species.
campylocarpum ssp. *caloxanthum* (*R. caloxanthum*)	Hymenanthes	China, Burma	Not assessed	MPI=Y as *R. caloxanthum*
canadense (*Azalea canadensis*)	Pentanthera	USA, Canada	LC	One collection listing in 2016. Imported by Pukeiti from the Species Foundation in 1986 (NZRA 1987, p58). Two forms imported by Douglas Cook from Hillier & Sons (England) in 1964 (Cook [undated]). MPI=Y.
catacosmum	Hymenanthes	China	Vu	Imported by Douglas Cook from Hillier & Sons (England) in 1950 (MacKay 1996). Sales list in 1945 (NZRA1945). Listed by Smith (1983). MPI=Y.
caucasicum	Hymenanthes	Turkey, Georgia	LC	Listed by MPI. MPI=Y.
cavaleriei	Azaleastrum	China, Vietnam	LC	Listed by MPI. MPI=Y.
columbianum (*Ledum columbianum*)	Rhododendron	USA	Not assessed	Listed by MPI as *Ledum columbianum*. MPI=Y.
coriaceum	Hymenanthes	China	NT	One collection listing in 2016. Purchased by Douglas Cook for Eastwoodhill in 1945 (MacKay 1996). At Pukeiti in 1986 but now dead (PRT undated). MPI=Y.
cowanianum	Rhododendron	Nepal	LC	Imported by Douglas Cook from Hillier & Sons, England, in 1964 (MacKay 1996). MPI=N.
cuffeanum	Rhododendron	Burma	Not assessed	Imported by Pukeiti from Greer Gardens, USA, in 1985 (Smith 1986, p64). MPI=N.
cuneatum	Rhododendron	China	Vu	Imported by Pukeiti from the Species Foundation (SF65/497, ex Glendoick) in 1979 (NZRA 1979, p25). Imported by Douglas Cook from Hillier & Sons, England, in1950 (MacKay 1996). MPI=Y.
cuneifolium var. *cuneifolium*	Vireya	Borneo (Sabah)	LC	Collected by Os Blumhardt from Mt Kinnabalu in 1979 (NZRA 2003a, p28). Collected from North Sarawak by Keith Adams in 1984 (NZRA 2003a, p29). Collected from North Sarawak by Keith Adams in 1992 (NZRA 2003a, p30). MPI=N.

Table 1. List of Rhododendron species that have previously been in New Zealand but which have no current collections or commercial trade listing.

Species	Subgenus	Origin	Red List	Notes
durionifolium ssp. *durionifolium*	Vireya	Indonesian Borneo, Borneo (Sabah)	LC	Collected from North Sarawak by Keith Adams in 1984 (NZRA 2003a, p29). Collected from central Sarawak by Keith Adams in 1989 (NZRA 2003a, p29). Introduced by Keith Adams in the 1980s (Argent 2008). MPI=N.
eclecteum	Hymenanthes	China, Burma	Vu	*R. eclecteum* KW5732 imported by Pukeiti from the Species Foundation in 1986 (NZRA 1987, p58). Listed by Smith (1983). MPI=Y.
edgarianum	Rhododendron	China	Not assessed	Imported by Douglas Cook from Hillier & Sons, England, in1964 and purchased from 'Russell' (could be either Russell Matthews or Russell Cook) in 1950 (MacKay 1996). MPI=N.
farrarae (*Azalea farrarae*)	Tsutsusi	China, Japan, Hong Kong	LC	Sales list in 1965 (NZRA1965). MPI=N.
formosanum	Hymenanthes	Taiwan	LC	Wild collected material RV9892 imported in 1971 by Rhododendron Venture (NZRA 1971, p57). MPI=Y.
fragrariflorum	Rhododendron	Bhutan, China	LC	Listed by Smith (1983). MPI=N.
fulgens	Hymenanthes	Nepal, India, Burma, China	LC	Brought to NZ from Sikkim in 1978 by Ron Gordon (NZRA 2003a, p28.). Purchased by Douglas Cook from Duncan and Davies in 1935 and 1937 (MacKay 1996). Listed by Smith (1983). MPI=Y.
fulvum var. *fulvoides* (*R. fulvoides*)	Hymenanthes	China	Not assessed	Sales list in 1952 (NZRA1952). MPI=Y for species.
gaultherifolium	Vireya	West Papua	LC	Wild collected from PNG by W.R. and M. Philipson (Philipson 1969). Seed collected from Mt Wilhelm, PNG by G. Smith in 1986 (NZRA 2003b, p47). Wild collected plants alive in the Blumhardt collection in 1987 (Ballard 2015, p39). MPI=N.
glabriflorum	Vireya	West Papua	LC	Listed by Smith (1983). MPI=N.
glaucophyllum var. *tubiforme* *(R. tubiforme)*	Rhododendron	China, India, Bhutan	DD	One collection listing in 2016. Imported by Pukeiti from the Species Foundation (SF65/475, Rowallane) in 1979 (NZRA 1979, p 25). A herbarium sample came from a garden in Hawera (Allan herbarium [undated]). MPI=Y for species.
gongshanense	Hymenanthes	China	Vu	Listed by MPI. MPI=Y.
groenlandicum (*Ledum groenlandicum*)	Rhododendron	Canada, USA, Greenland	LC	One trade listing in 2015. MPI=Y.
hunnewellianum ssp. *rockii* (*R. rockii*)	Hymenanthes	China	Vu	At Eastwoodhill in 1965, since died (MacKay 1996). MPI=Y as *R. rockii*.
kieskei var. *ozawae*	Rhododendron	Japan	LC	One trade listing in 2017. MPI=Y for species.
kongboense	Rhododendron	Bhutan, China	NT	Listed by Smith (1983). In the Markby collection in 1995 (Markby 1995, p13). MPI=Y.
konori var. *phaeopeplum*	Vireya	West Papua	LC	Listed by Smith (1983). MPI=Y for species.
kroniae (*Menziesia purpurea*)	Pentanthera	Japan	DD	Imported by Douglas Cook from Hillier & Sons, England, in 1946, 1950, since died (MacKay 1996). MPI=N.
laudandum	Rhododendron	Bhutan, China	Vu	Listed by MPI. MPI=Y.
laudandum var. *temoense*	Rhododendron	China	Vu	Purchased by Pukeiti from Alouette Nursery in 1987 (PRT [undated]). MPI=Y.
leptocladon (Previously synonymous with *R. lyi* but now considered a separate taxon.)	Rhododendron	China, Vietnam	Vu	MPI=Y as *R. lyi*.
lindaueanum var. *lindaueanum*	Vireya	West Papua, PNG	LC	Collected by G. Smith in PNG in 1983 (Smith 1984, p43). MPI=N.
lowndesii	Rhododendron	Nepal	Vu	Doyle collection in 1993 (Doyle 1993, p63). MPI=N.
ludlowii	Rhododendron	China, India	Vu	Imported (when the account was in pounds) by E. Doyle (Doyle 1993, p61). MPI=Y.
martinianum	Hymenanthes	Burma, China	Vu	NZRA received seed in 1954 (NZRA 2003c, p49). NZRA received seed KW21557 from the Kingdon Ward North Burma expedition of 1953 (NZRA 1954). Listed by Smith (1983). MPI=N.
mayabarae	Tsutsusi	Japan	LC	Listed by Smith (1983). MPI=N.
myrtifolium (*R. kotschyi*)	Rhododendron	Bulgaria, Slovenia, Romania, Ukraine	LC	In the Markby collection in 1995 (Markby 1995, p13). MPI=Y as *R. kotschyi*.
neoglandulosum (*Ledum glandulosum*)	Rhododendron	Canada, USA	LC	Previously at Eastwoodhill (MacKay 1996). MPI=Y as *L. glandulosum*

R. cuneifolium at Edinburgh

R. cuneatum at Edinburgh

R. caucasicum at Kew

Table 1. List of Rhododendron species that have previously been in New Zealand but which have no current collections or commercial trade listing.

Species	Subgenus	Origin	Red List	Notes
nervulosum	Vireya	Malaysian Borneo	Vu	Collected by Os Blumhardt from Mt Kinnabalu in 1979 (NZRA 2003a, p28). Listed by Smith (1983). MPI=N.
nipponicum (*Azalea nipponica*)	Pentanthera	Japan	LC	One collection listing in 2016. MPI=Y.
nivale	Rhododendron	Nepal, India, Bhutan, China	LC	Listed by Smith (1983). MPI=Y.
orthocladum	Rhododendron	China	LC	Listed by Smith (1983). Imported by Douglas Cook from Hillier & Sons, England, in1948 (MacKay 1996). MPI=Y.
pentaphyllum (*Azalea pentaphylla*)	Pentanthera	Japan	LC	Imported by Douglas Cook from Hillier & Sons, England, in1947 (MacKay 1996). MPI=Y.
pilosum (*Menziesia pilosa*)	Pentanthera	USA	DD	Previously at Eastwoodhill (MacKay 1996). MPI=N.
prionophyllum	Pentanthera	USA	LC	At Pukeiti in 1989, since died (PRT [undated]). MPI=Y.
pulleanum var. *maiusculum*	Vireya	West Papua, PNG	LC	Wild collected by G. Smith in PNG in 1983 (NZRA 2003b, p47). MPI=N.
purdomii	Hymenanthes	China	DD	Listed by MPI. MPI=Y.
radians var. *pubitubum* (*R. pubitubum*)	Vireya	Sulawesi	DD	Collected by Keith Adams from Sulawesi in May 1996 (Adams 1996b, p3). MPI=N.
ramsdenianum	Hymenanthes	China	Vu	Listed by MPI. MPI=Y.
rufum (*R. weldianum*)	Hymenanthes	China	LC	One collection listing in 2016. MPI=Y as *R. weldianum.*
salicifolium	Vireya	Borneo (Sarawak)	Vu	Collected by Keith Adams in 1982 from South Sarawak (NZRA 2003a, p29.). MPI=N.
sanguineum var. *haemaleum* (*R. haemaleum*)	Hymenanthes	China	LC	Sales list in 1945 (NZRA1945). MPI=Y for species.
scortechinii	Vireya	Malayan Peninsula	LC	Collected from Malayan Peninsula by Keith Adams in 1984 (NZRA 2003a, p29). Collected in 1990 by Keith Adams (Adams 1990). MPI=N.
searsiae	Rhododendron	China	DD	Thomson collection, Stratford 1944, (Yeates 2011, p50). Imported by Pukeiti from the Species Foundation (SF70/125, Glendoick) in 1979 (NZRA 1979, p25). Sales list in 1945 (NZRA1945). Listed by Smith (1983). MPI=Y.
selense ssp. *dasycladum* (*R. dasycladum*)	Hymenanthes	China	LC	Sales list in 1966 (NZRA1966). Listed by Smith (1983). MPI=Y as *R. dasycladum*.
selense ssp. *jucundum* (*R. jucundum*)	Hymenanthes	China	Vu	Listed by Smith (1983). MPI=Y for species.
sherriffii	Hymenanthes	China	Vu	Imported by Pukeiti from the Species Foundation in 1986 (NZRA 1987, p58). Listed by Smith (1983). MPI=N.
shweliense	Rhododendron	China	Vu	Previously at Pukeiti, since died (PRT undated). MPI=Y.
sperabiloides	Hymenanthes	Burma, China	Vu	*R. sperabiloides* F21824 imported by Pukeiti from the Species Foundation in 1986 (NZRA 1987, p58). MPI=Y.

Table 1. List of Rhododendron species that have previously been in New Zealand but which have no current collections or commercial trade listing.

Species	Subgenus	Origin	Red List	Notes
spilotum	Hymenanthes	Burma	DD	One collection listing in 2016. Listed by Smith (1983). MPI=Y.
sutchuenense var. geraldii (*R* x *geraldii*)	Hymenanthes	China	Not assessed	Imported by Douglas Cook from Hillier & Sons, England, in1947 (MacKay 1996). MPI=N.
tapetiforme	Rhododendron	Burma, China	LC	Imported by Pukeiti from the Species Foundation (SF66.577) in 1973 (NZRA 1979, p24). Listed by Smith (1983). One collection listing in 2008. MPI=Y.
temenium	Hymenanthes	China	Vu	Listed by MPI. MPI=Y.
truncicola	Vireya	PNG	LC	Introduced to NZ in 1988 by Michael Cullinane (Argent 2015, p126). MPI=N.
ungernii	Hymenanthes	Turkey, Georgia	Vu	Thomson collection, Stratford in 1944 (Yeates 2011, p59). Imported by Douglas Cook from Hillier & Sons, England, in 1950 (MacKay 1996). Listed by Smith (1983). MPI=Y.
vaccinoides	Vireya	Nepal, India, Bhutan, China, Burma	LC	Imported by Douglas Cook from Hillier & Sons, England, in1964 (MacKay 1996). Was at Pukeiti in 1987 but died (PRT [undated]). MPI=N.
valentinianum var. *oblongilobatum*	Rhododendron	China, Vietnam	DD	One collection record in 2003. MPI=Y for species.
vanderbiltianum	Rhododendron	Sumatra	LC	Wild collected by Binney in May 1997 (Binney 1998). MPI=N.
x *variolosum* (*jasminiflorum* x *malayanum*)	Vireya	Borneo (Indonesia & Malaysia)	LC	Collected by Keith Adams in 1982 from South Sarawak (NZRA 2003a, p29.) MPI=N.
vesiculiferum	Hymenanthes	China, Burma	Vu	Listed by MPI. MPI=Y.
viscistylum	Tsutsusi	Japan	Not assessed	Imported from ARS by Pukeiti in 1979, since died (PRT [undated]). MPI=N.
watsonii	Hymenanthes	China	NT	Listed by Smith (1983). Was at Eastwoodhill, since died (Cook [undated]). MPI=N.
websterianum	Rhododendron	China	LC	One collection listing in 2016. MPI=Y.
westlandii (*R. moulmainense* according to some authorities)	Azaleastrum	China, Vietnam	LC	Sales lists in 1965 (NZRA1965) and 1966 (NZRA1966). MPI=N.
wrayi	Hymenanthes	Malayan Peninsula	LC	Collected from Malayan Peninsula by Keith Adams in 1984 (NZRA 2003a, p29) and in 1986 (NZRA 2003a, p29). MPI=N.
yedoense	Tsutsusi	Burma, China	DD	For sale at Duncan and Davies in1947 (Duncan & Davies 1947). Purchased from Duncan and Davies in 1942 by Douglas Cook (MacKay 1996). Listed by Smith (1983). MPI=Y.
yungningense	Rhododendron	China	Vu	Imported by Pukeiti from Greer Gardens, USA, in 1985 (Smith 1986, p64). MPI=N.

R. gaultherifolia at Edinburgh

R. X *variolosum* at Edinburgh

R. yungningense at Edinburgh

Bibliography

Abbreviation: NZRA = New Zealand Rhododendron Association.

Adams K. 1990. Letter to the editor describing a collecting expedition to Sarawak and Peninsular Malaya in 1990. *Vireya Vine*. December 1990 No. 27: 212-213. Downloaded from vireya.net on 17.11.2016.

Adams K. 1996a. Notes from a plant hunter's diary. *Journal of the America Rhododendron Society*. 50(1): 6-8. VirginiaTech Digital Archive. Accessed 29.01.2016.

Adams K. 1996b. Letter to the editor describing a collecting expedition to Sulawesi in 1996. *Vireya Vine* 48: 3-4. Downloaded from vireya.net on 13.07.2017.

Allan Herbarium. [undated]. *Systematic collections data*. Available at https://scd.landcareresearch.con.nz. Searched 06.12.2016.

Argent G. 2008. Some recent species introduced into cultivation. *Scottish Rhododendron Society Yearbook* 10: 103-116. Downloaded from vireya.net on 17.11.2016.

Argent G. 2015. *Rhododendron* of the subgenus *Vireya*. 2nd edition. UK, Edinburgh: Royal Botanic Garden, Edinburgh, in association with The Royal Horticultural Society.

Auckland War Memorial Museum. [undated]. *Collections online*. Available at www.aucklandmuseum.com/collections-research/collections. Searched on 06.12.2016.

Ballard K. 2015. Rhododendrons in Northland. *The New Zealand Rhododendron* 3: 38-39.

BGCI. 2017. *Botanic Gardens Conservation International: Plant Search*. Online at: *https://www.bgci.org/plant_search.php.* Searched on 06.01.2017.

BGCI. 2012. *Global survey of ex-situ Rhododendron collections*. UK (Richmond): Botanic Gardens Conservation International. Available from bgci.org.

Binney D. 1998. Letter to the editor describing a collecting expedition to Sulawesi in 1997. *Vireya Vine*. March 1998 No. 52:3-4. Downloaded from vireya.net on 17.11.2016.

Chamberlain D, Hyam R, Argent G, Fairweather G, Walter KS. 1996. *The genus Rhododendron: its classification and synonymy.* UK, Edinburgh: Royal Botanic Garden Edinburgh.

Cook D. [undated]. *Notebook 18*. Unpublished record book written by Douglas Cook. Eastwoodhill archive, Gisborne, New Zealand.

Dawson M. 2015. Creation of the New Zealand Plant Collections Register. *New Zealand Garden Journal* 18(1): 9-14.

Dickson M. 2009. The Plants Biosecurity Index (PBI). *New Zealand Garden Journal* 20(2): 8-9.

Doyle E. 1993. Dwarf rhododendrons. *NZRA Bulletin* 81: 61-65.

Duncan and Davies 1947. *Catalogue of choice nursery stock*. Duncan and Davies Ltd, New Plymouth. Online at http://www.rnzih.org.nz/pages/nurserycatalogues.html.

Eastwoodhill Arboretum. 2016. *Our collection*. Available at www.eastwoodhill.org.nz/explore/our-collection/CollectionSearchForm. Searched on 25.11.2016.

Fang MY, Fang RC, He MY, Hu LZ, Yang HB, Chamberlain DF. 2005. *Rhododendron*. Flora of China. 14: 260-455.

Gaddum M. 1999. *The trade plant finder 1999-2000*. Gisborne: New Zealand Plant Finder Ltd.

Gaddum M. 1999a. *The trade plant finder 1999-2000 supplement*. Gisborne: New Zealand Plant Finder Ltd.

Gibbs D, Chamberlain D, Argent G. 2011. *The Red List of Rhododendrons*. UK (Richmond): Botanic Gardens Conservation International. Available from bgci.org.

Heritage Park Management Committee. 2001. *Heritage Park – Catalogue of Rhododendron species and hybrids*. Heritage Park Trust (Manawatu).

MacKay MB. 1996. *Management of the plant collection at Eastwoodhill Arboretum. Vol 2. Appendix 1: Catalogue of the collection. Vol 2 Appendix 3: Catalogue of the previous collection*. Unpublished PhD dissertation, Massey University, New Zealand.

MacKay MB. 2014. *List of Vireya species at Victoria Esplanade, Palmerston North*. Unpublished field notes. Massey University, New Zealand.

MacKay MB. 2016. Development of an ex-situ conservation plan for *Rhododendron* species in New Zealand. *The New Zealand Rhododendron* 4: 26-27.

MacKay MB, Smith GF, Gardiner SE. 2017. New Zealand collections of Rhododendron as a resource for ex-situ conservation. *New Zealand Journal of Botany* http://dx.doi.org/10.1080/0028825X.2017.1291434. Published online on 2 March 2017.

Markby R. 1995. Growing the species. *NZRA Bulletin* 83:12-15.

MPI. [undated]. *New Zealand Ministry for Primary Industries Plant Biosecurity Index*. Available from https://www1.maf.govt.nz/cgi-bin/bioindex/bioindex.pl. Accessed 10.10.2015.

National Forestry Herbarium, Scion. [undated]. *NZFRI online database dataset*. Available from nzfri.scionresearch.com. Searched on 06.12.2016.

NZRA. 1945. Plants for members. *NZRA Bulletin* 1: 1-6.

NZRA. 1952. Plants for members. *NZRA Bulletin* 10: 1-4.

NZRA. 1954. The Kingdon-Ward north Burma expedition 1953. *NZRA Bulletin* 13: 6-8.

NZRA. 1963. Plants for members 1963. *NZRA Bulletin* 35: Plant list 1-3.

NZRA. 1965. Plants for members 1965. *NZRA Bulletin* 42: Plant list 1-4.

NZRA. 1966. Plants for 1966. *NZRA Bulletin* 45: Plant list 1-4.

NZRA. 1971. The Rhododendron Venture. *NZRA Bulletin* 58: 56-57.

NZRA. 1979. Rhododendrons imported from the Rhododendron Species Foundation, USA, 1973-1979 and in cultivation at Pukeiti. *NZRA Bulletin* 67: 24-25.

NZRA. 1987. Recent arrivals at Pukeiti. *NZRA Bulletin* 75: 58-59.

NZRA. 2003a. New Zealand plant hunters. *NZRA Bulletin* 91: 28-33.

NZRA. 2003b. Graham Smith's Papua New Guinea collections 1983-1986. *NZRA Bulletin* 91: 47.

NZRA. 2003c. Expeditions which have contributed to New Zealand plantings. *NZRA Bulletin* 91: 48-49.

Philipson M. 1969. Plant hunting in New Guinea. *NZRA Bulletin* 54: 10-14.

(PRT) Pukeiti Rhododendron Trust. [undated]. *Historical card file of Rhododendron accessions covering 1950s-1990s*. Unpublished archive held at Pukeiti Gardens, New Plymouth.

(PRT) Pukeiti Rhododendron Trust. 2005. *Inventory of Rhododendron species*. Unpublished species list, Pukeiti Rhododendron Trust, New Plymouth.

(PRT) Pukeiti Rhododendron Trust. 2008. *Inventory Rhododendron subgenus Vireya – March 2008*. Unpublished species list, Pukeiti Rhododendron Trust, New Plymouth.

RBGE. 2017. *Royal Botanic Gardens Edinburgh: Catalogue of the Living collections*. Available from http://elmer.rbge.org.uk/bgbase/livcol/bgbaselivcol.php. Searched 11 January 2017.

RBGK. 2015. *Electronic Plant Information Centre: Living Collections*. Available from http://epic.kew.org/searchepic/searchpage.do. Searched 29 October 2015.

Smith G. 1983. *Rhododendron species and hybrids in New Zealand*. Published by Graham Smith in association with the New Zealand Rhododendron Association, the New Zealand Nurserymen's Association, Pukeiti Rhododendron Trust and individual growers.

Smith G. 1984. Plant collecting in Papua New Guinea. *NZRA Bulletin* 72: 39-45.

Smith G. 1986. Recent arrivals at Pukeiti. *NZRA Bulletin* 74: 63-64.

(TRC) Taranaki Regional Council. 2016. *Pukeiti Plant Explorer. Online database of the plant collection at Pukeiti Gardens*. Available at: pukeitigardenexplorer.org/taxalist-R.aspx. Searched on 25.11.2016.

Yeates G. 2011. Rhododendrons at the Thomson's, Stratford in 1944: from the archives. *NZRA Bulletin* 99:57-59.

RHODODENDRON GOODENOUGHII

SECTION VIREYA, SUBSECTION SOLENOVIREYA

Andrew Brooker

With the completion of the new Vireya Walk, the structure not the planting, it is timely to write about one of the species rhododoendrons within this part of the collection.

The aptly named *Rhododendron goodenoughii,* a sweetly scented tubular-flowered species has been part of the Pukeiti collection since 1987. The first plant came to the garden from a collecting trip to Papua New Guinea which Os Blumhardt was part of. Not part of the mainland flora of PNG this wondrous plant hales from one of the many offshore islands within the Melanesian Sea and is named after the island, Goodenough Island.

Found at around 2000 - 2400m above sea level on an exposed ridge amongst sub-alpine grassland *Rhododendron goodenoughii* has trumpet-shaped, white scented tubes which are slightly curved. Its rather handsome foliage appear in tight pseudowhorls as rounded green leaves, smooth on top but densely scaled underneath. Whilst described as a shrub, it will reach 4m in height and end up an impressive plant.

As well as the original introduction in 1987, plants were also introduced in 2002 and recently this year. With all the changes to the covered display area of the last few years the original plant had been relocated to the nursery to use as a stock plant for propagation whilst the construction phase was carried out. This meant we were able to put the younger plants on display as part of the new garden.

Historically *R. goodenoughii* was first introduced into cultivation at Kew Gardens in 1964 by the Reverend Norman Cruttwell, a missionary working in Papua New Guinea. Reverend Cruttwell became a good friend of both Pukeiti and Graham Smith in the 1980s, assisting with collection trips and providing wild collected material for the Pukeiti Collection.

References

Argent G. *Rhododendrons of subgenus Vireya* Second edition. Page 213
www.en.wikipedia.org/wiki/Goodenough_Island
www.britannica.com/place/Goodenough-Island

Rhododendron goodenoughii

RHODODENDRON 'KIT COLLIER'

Gordon Collier

With my brother in law, Ron Gordon, living just a few miles away over the Taihape hills and well known in rhododendron circles for his hybrids, especially his 'Rubicon', seen in most gardens, and for his red hellebores, one of which was the forerunner of *H.* 'Flash Gordon,' it was inevitable that I also try my hand at hybridizing. What I didn't know was that the act of cross pollination was just the beginning of the process; that there were many hurdles to overcome before producing something akin to Ron's hybrids.

'Lemon Lodge' had always been one of my favourites, not only because of its association with Pukeiti, but also because it was yellow, a colour of choice. So it was in the spring of 1987 that I set forth and made a bewildering number of crosses using this good hybrid as the pollen parent; in that first flush of enthusiasm there were also a number of other crosses made. As seeds were sown and eventually pricked out, my dilemma soon became clear; where was I going to grow these seedlings on to eventually flower, a process that would take some years? Gardening on a steep north-facing clay hillside presented challenges enough and there certainly wasn't a chance there.

I was fortunate that a cousin living some distance away gave me space to grow a limited number of plants to maturity – even better, his soil was volcanic loam. Selecting only the most interesting plants from the many, they were planted out and left to chance.

In the course of time several were eventually singled out. Of these the yellows predominated and of these, two were duly named –'Meredith Collier' and 'Kit Collier'. These were both derived from crossing 'Ilam Orange' x 'Ilam Canary' x 'Lemon Lodge'.

A mature plant of *Rhododendron* 'Kit Collier' can be seen in a bed at Heritage Park where it towers above the other New Zealand hybrids. It is a good robust yellow and fulfils my original hopes.

But this is a cautionary tale. Rushing around with a paint brush is the easy part; where are you going to grow on the resulting seedlings?

NEW ZEALAND HYBRID RHODODENDRONS

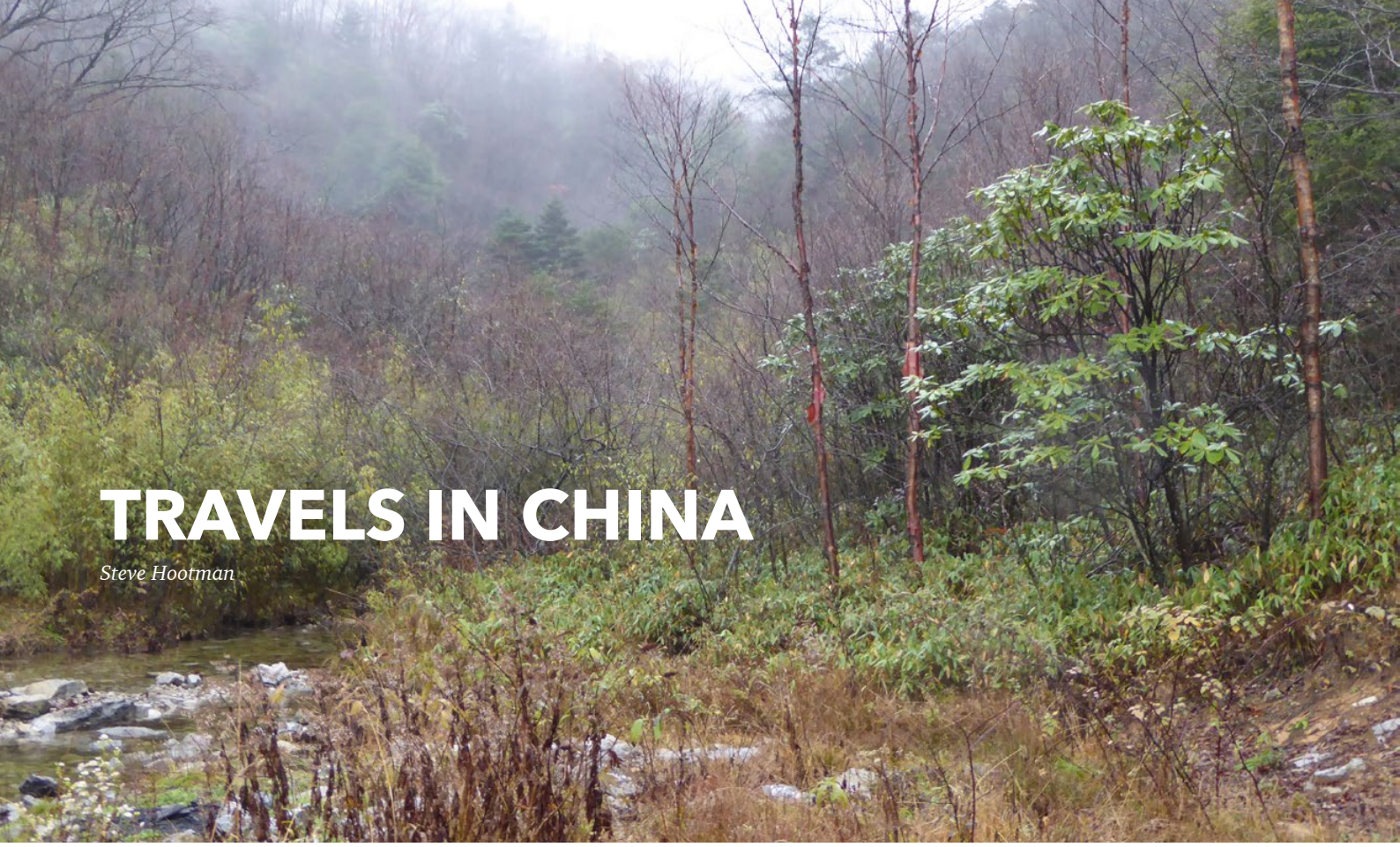
Photographed at Heritage Park.

1. *R.* 'Cathryn Fairbanks'
2. Bernie O'Keefe and Dennis Hughes check an unnamed hybrid
3. *R.* 'Kiwi Dream'
4. *R.* 'Helen Collier'
5. *R.* 'Crosshills Lemon'
6. *R.* 'Norrie King'
7. Trial beds at Heritage Park


5


6


7



TRAVELS IN CHINA

Steve Hootman

R sutchueneuse in its native habitat in Chongqing

We left home in late October 2015, arriving in the massive city of Chongqing on the 27 th. Chongqing Municipality was formerly included in the province of Sichuan but is now administered as one of China's four direct-controlled municipalities with over 30 million inhabitants. The city itself houses almost 19 million people, making it one of the largest in the country.

The following day we had a long day's drive to the northeastern portion of the municipality, just to the west of the border with Hubei Province and very close to the world famous Three Gorges on the Yangtze River. Along the way we parked at a truck stop for a break and a quick bite to eat, hoping to reach our destination in a single day. Before ordering, we had a look around the restaurant while the driver had a smoke. Inside were large, glass-enclosed bins of various rather unsavory-appearing portions of duck, featuring the wing tips, feet, heads with beak attached and various organs, all in a shriveled state and a strange brownish-gray in color as if they had been smoked in diesel fumes. None of it had any appeal whatsoever and we wondered what had happened to the actual bits of meat. We settled instead for something that I had never before seen in China – a sort of hot dog wrapped in a fried egg with chopped green onions and dry spices, all wrapped in a warm "pancake". These did the job and we were soon on our way.

Later, at another truck stop, Patrick and the driver were ecstatic on finding fish heads on the menu. We declined their offer to join them in devouring this delicacy. Their dumbfounded looks at our tremendous restraint was priceless. As we moved north and east, we followed the Yangtze River for a good part of the day and had several views of the massive, still filling reservoir. The weather was overcast, damp and quite chilly as we climbed into the hills above the river late in the afternoon.

This part of Chongqing is still quite wild and rugged, with the razorback ridges going on into the distance as far as we could see. Although the mountains here are not all that high compared with the Sino-Himalayan regions further west, the remoteness and inaccessibility of the overall region keeps it little-known and relatively unexplored.

My good friend Jens Nielsen had spent quite a bit of time here several years earlier, working with botanists from the Kunming Institute of Botany, looking for outlying species of *Rhododendron*, much as I had been doing in recent years. The species *detersile* and *roxieoides*, both members of Subsection Taliensia, were recorded historically from this region, and Jen's team did finally manage to locate a small population of the latter in 2011. *R. roxieoides* is a species officially named and described by Dr. David Chamberlain at the Royal Botanic Garden Edinburgh in 1982, from a Chinese herbarium specimen collected in 1958 in "Wu Shan, Chao Yang Ping, E Sichuan" (now E Chongqing).

As stated by Chamberlain, this new species is "Apparently allied to *R. roxieanum* but differing in the more intensely colored flowers and in the glandular style," as well as in its very disjunct range. There is ongoing discussion as to the actual relationship

of this species within the genus, and I hoped my own observations would contribute something meaningful to the conversation. Images sent to me of this species in flower show a strikingly beautiful plant with deep pink flowers (unusual for a Taliensia) and with remarkably thick indumentum on long and narrow leaves, quite glossy on the upper surface, bearing some resemblance to some forms of its namesake, although growing many hundreds of miles from the nearest known population of *roxieanum*. The images sent to me by Jens showed some old plants clinging to rocky outcrops on ridge tops, and he gave pretty good directions as to the actual location of the one small population they had found. It all seemed pretty straight-forward. When we actually arrived in the region and began to drive into the hills, however, I quickly realized that with only a couple of days in the area, there was no way we were going to find *R. roxieoides*. Very rugged ridges surrounded us in every direction, mile after mile of them. And I had thought we would be able to find a dozen rhododendrons in that vast, jumbled terrain……

Upon arrival in Zhuxian (Chao Yang Ping), we checked into what passed for the local hotel, a dirty and rundown place with squat toilets and no heat, quite reminiscent of the typical state of our lodgings back in the '90s when I first started travelling in China.

The next morning we all crammed into a hired local vehicle and headed up for our first day in the field on what seemed to be the only road into the hills. As it would remain for most of the trip, the weather was a bit chilly and quite overcast with thick mist. It had rained heavily in the night. We were soon out of the primary agricultural zone and local woody vegetation began to appear amongst the cut-over forest and open pasture. Various species of bamboo were common as they often are where there has been disturbance. Birch trees soon appeared and we quickly spotted our first rhododendron, the species *sutchuenense*, a member of Subsection Fortunea, and one I had been expecting, based upon references to its native range and the fact that Jens had recorded it in the area a few years earlier. It was my first sighting of this species in the wild and I was pleased to see that it was very similar in appearance to the plants we grow under this name in the RSBG.

We were taken to the very end of the road where there were a couple of buildings and a small orchard. From here we headed directly to a steep slope with a stream at its base, always a good situation for rhododendrons and other native plants. We soon spotted plants of *R. augustinii* along with various oaks, maples, etc., but the habitat was very disturbed and it was not a promising start. Our local guide and Patrick directed us to follow a small path upstream before they retreated back to the farmhouse, and this new area turned out to be much more satisfying, with a greater diversity of interesting plants.

I spotted another rhododendron I had been hoping to find, a species first collected back in 1994 by one of the first groups to explore this remote region. We have been growing this species, a member of Subsection Triflora, for many years, but it does not match the description of any known species and nobody has been able to figure out exactly what to call it. I have been assuming it to be a new species, and when it was collected once again by Jens Nielsen a few years ago it was under the name 'species nova'. It shares obvious affinities with the species *concinnum* which is also known from this part of China, but differs in density of scales, etc. The plant seemed to be quite uniform everywhere we observed it over the next couple of days. I was very happy to be able to see it in the wild and verify for myself that it was an actual species and not some random hybrid.

Rhododendron maculiferum, another new species for me in the wild, was common among the boulders along the stream. This species is closely related to the better known and more widely grown *R. pachytrichum* and *R. strigillosum*, differing in its greater hardiness and smaller, usually paler flowers.

R. oredoxa var *fargesii*

The only other rhododendron we observed that day was the common and widespread *R. oreodoxa* var. *fargesii*, a species I had first observed in the wild in

R. sutchuenense var *geraldi*

far W Sichuan back in 2006.

We also found the Chinese tulip tree – *Liriodendron chinense*, very similar in appearance to the native species I was familiar with in E North America. Interestingly, there were many other familiar plants from genera any native plant enthusiast on the east coast would recognize, illustrating the well-documented floral overlap between the forests of Eastern Asia and those of E North America.

Here we observed a *Hepatica* growing with the *Liriodendron*. This was *Hepatica henryi*, a rare species in cultivation. In addition, there were species of *Corylus*, *Aster*, *Fraxinus*, *Asarum*, *Betula*, *Acer*, etc. All of these same genera are well represented in E North America.

We hiked along the stream for some time, enjoying the sight of massive old specimens of *Rhododendron sutchuenense* and the beautiful peeling bark of the birch trees. As always in new territory, it was a thrill just to round each corner, never knowing what you might find – one of the true joys of plant hunting.

After numerous ups and downs, twists and turns we became a bit confused as to exactly how to get back to the road, our current path seeming to just keep going ever further into the wilderness.

Until that point it had not been clear to us that our guide had actually not come along with us and that we were on our own. We debated simply turning around but this seemed like a waste of an opportunity since the road could not be too far away up ahead somewhere, could it?

We decided to cut across country and head directly to where we thought we could intersect the road. By this point we were pushing through head-high bamboo which covered the slopes of the hills like a dense, green blanket. The bamboo had grown into and over the path and so we had to push blindly through and feel for the path with our feet, hoping not to trip up on a boulder or step off the path for a tumble. By now the bamboo was dripping wet and soon we were as well, the water funneling directly into our boots so that we were squishing along at as fast a pace as we could manage along the blind path. Unfortunately, moreover, our shortcut turned out to be a bad choice and we were forced to turn back through all of the wet bamboo we had already slid through. Once back to our turning point we decided not to risk being stuck in the mountains for the night and so turned around to retrace our morning path back to the road end.

We arrived back at the road later that afternoon, quite chilled and soaked through to the bone, but in good spirits after our day in the field. Patrick and the guide quickly ushered us into an open room with a fire in a central stove. We peeled off our thoroughly soaked outer layers and enjoyed some hot potatoes and tea, happy for a rest. Patrick asked us what had taken us so long and we explained our situation. He and the "guide" laughed and asked us in amazement why had we gone so far up the path? That path would have eventually taken us right into Hubei! What were we thinking? As if we should have known! I have learned over the years that there is not really much to say in such situations. Arguing is pointless. It is all a part of the game.

The next day we drove to another set of hills and did four separate short hikes trying to get a feel for the lay of the land and the local flora. On one of these hikes we climbed a trail to a pagoda at the top of a hill and found several plants of interest, including a *Sorbus* (mountain ash), *Hydrangea longipes*, *Acer sterculiaceum* ssp. *franchetii* and a single tree of *Magnolia sprengeri* that appeared to have been cut down at least once and so was multi-trunked, the trunks rising confusingly from amongst the massive boulders. The interesting thing about this particular specimen was that each of the trunks exhibited differently shaped foliage, ranging from lobed to unlobed, etc. All this variation is probably based upon varying growth rates and maturity, but is quite confusing and illustrates how important it is to be especially observant when identifying plants in the field. A person could have quite easily mistakenly named two or three species based simply upon leaf morphology.

There were masses of *R. augustinii* growing at the very top of the hill among the boulders surrounding the pagoda.Even more interesting was the single large specimen of what appeared to be *R. fortunei* ssp. *discolor*. Unfortunately, there were no old flowers or fruit to help in

R. pseudochrysanthum persistent indumentum

identification but as this species is known from the area and it definitely looked like that species (it could not really have been any other), I was pretty sure of the identification.

We observed a few other specimens of this same taxon in the other regions we visited on the trip, including far to the east in Anhui. What was confusing and what makes these field observations so critical to the understanding of the genus, is that we also observed what I have been calling the "Guizhou form" (although it is also known from other regions including Emei Shan in Sichuan) of *R. fortunei* ssp. *discolor* in the same regions. These "Guizhou" forms have narrower and smaller, pale green leaves with very conspicuous, long overlapping bud scales on the flower buds. The flowers on this form do not appear until mid-summer and are usually pure white, sometimes with a reddish or greenish blotch. "Typical" *R. fortunei* ssp. *discolor* on the other hand, those plants with flowers and foliage similar to the more widely grown ssp. *fortunei*, bloom in late spring, typically with pink flowers and lacking the long bud scales on the buds.

Technically, this subspecies is separated from ssp. *fortunei* primarily in having oblanceolate (vs. obovate) leaves that are a bit longer and more narrow. The "typical", and what I call the "Guizhou" forms, of what are supposed to be ssp. *discolor* are quite distinct from one another and after seeing them both in the wild, in the same regions, I have to disagree with the lumping of them all into a single taxon. They are quite obviously two completely different taxa. It is my current thought that the "typical" form, the one we observed on our rocky knoll, may be what used to be called *R. houlstonii*, a species collected and described by Henry Wilson from this very region. It is basically a more narrow-leafed version of *R. fortunei* and, I think, should be included within that very widespread and variable species. The "Guizhou" form, on the other hand, should be given specific status as a distinct taxon.

Another of our short hikes resulted in a long downhill walk along a stone path with local guides waving us along for what seemed to be a complete waste of time. Simultaneously, a couple of fellows who we assumed worked for the park agency showed up to document our every move with a camera. More frustration! As you can imagine, it can be quite difficult to "look for" plants when park personnel are taking pictures of you at every stop.

With increasing hesitation, we continued to follow them downhill. In the end, it turned out to be a somewhat interesting location when we ended up in a deep ravine with rocky cliffs on either side of a tumbling stream. Some fascinating trees presented themselves and we noted many beautiful ferns. Growing in the seepages at the bases of the cliffs were large banks of a beautiful groundcover that none of us had previously seen in the wild – *Chrysosplenium macrophyllum*. This is a saxifrage relative with large and fleshy, deep green and somewhat hairy leaves that spreads by stolons. The small white flowers are on upright panicles in late winter. We use this species in the garden at the RSBG in damp areas with good solid shade where it spreads around and adds another layer to the tapestry of shapes and textures beneath the trees and rhododendrons.

Kelly, Sue and Tom spotted some interesting basal rosettes of leaves on a steep muddy bank and called me over, basal rosettes being something that has always attracted my attention. The thickly-textured, rounded leaves were deeply bullate and there was a large resting bud in the center.

It was reminiscent of some of the *Primula* species I had seen in the high alpine meadows along the Yunnan/Burma frontier far to the south and west, but it could not possibly be a primrose in this part of China and at

R. arizelum

R. argyrophyllum

R. beanianum

R. primuliflorum

R. pemakoense

R. mallotum floccose leaf stalks

R. pocophorum glandular leaf stalks

this low elevation! None of us had any idea what it could possibly be, and for this we were thrilled. It was a stunning foliage plant and we could not wait to sort it out when we had access to some reference materials. After sharing images with friends upon our return home, we came up with the name *Primula ovalifolia*. It actually was a primrose! We all had our suspicions but it just seemed so out of place. You have to keep a very open mind when exploring for plants in the wild places of the world.

Our last hike for the day was following a road down from a pass in one of the higher portions of the hills. We had spotted what appeared to be rhododendrons on the drive up that morning, and were determined to stop on the way back and check them out. If they were rhododendrons (and I was pretty sure it was more *sutchuenense*, although I had only a very brief glimpse through the window of our fast-moving vehicle), then there would also be many other interesting plants. As we walked along the road, we indeed spotted a great variety of flora, including a wide selection of *Viburnum* species, hydrangeas, *Aralia chinensis* with masses of black-purple fruits in huge heads, and *Clerodendron trichotomum* with its strangely colored, metallic-blue fruits surrounded by swollen, red-purple calyces. We also found some great herbaceous plants which had Kelly and Sue in huge smiles. We had seen very little in the way of this sort of material, and perennials and alpines are their specialty. Among the best of these was a *Lilium* species and one of the verticillate *Polygonatum* species so common and widespread across Asia.

I think the highlight for them, however, was the small patch of *Podophyllum pleianthum* high up on a cliff. This was one of the primary goals of the expedition for us—to find *Podophyllum* growing in the wild.

This article is reprinted from the 2017 Rhododendron Species Handbook with the permission of the Author.

R. peramoenum with *R. arboreum* leaf on right

R. 'Alice'

R. 'Sappho'

SOME OLD FAVOURITE HYBRIDS

R. 'White Pearl'

R. 'Noyo Chief'

BOTANICAL GARDENS IN THE PROVINCE OF XINJIANG, CHINA

(AND NOT A RHODODENDRON TO BE SEEN)

Notes from the Pukeiti Tour September 2017

Lynn and RobinBublitz

Xinjiang, the new frontier in China, is the country's largest province - as big as France, Germany and Spain combined. It lies between the Altay Range and Russia in the north, the Pamirs and Central Asian republics to the west, and the Kunlun Mountains and Tibet to the south. It is divided by the impressive 1000km long east-west Tian Shan Range, the western edge of which leads to Kazakhstan. Much of the province is desert, underlain by vast mineral resources and overlaid with hugely productive areas of artificially irrigated fruits, vegetables and stock crops.

The mountain ranges result from the Himalayas, the northern edge of the Indian continental plate in the south, pushing north and the Altay Range in the north, pushing south, squeezing the continental plates together. The tectonic forces have produced a series of jumbled mountain ranges, the Tian Shan or 'Heavenly Mountains' being one of them. The edges have been buckled, but exposed to eons of erosion, washing and blowing the top layers into the once ocean floor, flattening its base and uncovering twisted and sometimes vertical strata of the underlying old earth's crust. Basins between the ranges, once sea, are now deserts. The rising mountains stopped rainfall reaching the old oceans and the seas dried up in the searing summer heat, leaving in places, sand dunes, salt pans, the salt clearly visible in places against the weathered and coloured hills, and wide flat rocky surfaces.

The Taklamakan Desert in the south is one of the largest shifting-sand deserts in the world. Along its edge run the old Silk Roads on which camel and mule trains carried goods, backwards and forwards from China to Eastern Europe for over 2000 years. Cities now have grown at the old stations along the route.

At the eastern end of the Tian Shan Range on an old Silk Road staging post in a basin 100m below sea level, the city of Turpan is rapidly expanding on the site of the ancient town of Gaochang. The population exceeds a half million. A place of extremes, the temperatures range from -28C in the winter to 49C in the summer. The precipitation is little more than 16mm (and that includes the snow) and yet it produces 90% of China's table grapes, (mainly as raisins) as well as melons, watermelons, apples, peaches, apricots and mulberries.

The Turpan basin lies between two sections of the Tian Shan Range, the

Professor Dr. Guan Kaiyun

Bogoda Mountains in the north and the Kuruktag to the south. The wind whistles between them, harvested by thousands of wind turbines which produce 2,000,000 KW of electricity to light the cities of Turpan and Urumqi. The mountains catch any rain which is funnelled by the canyon-like gorges down into the basin at the base of which is Lake Ayding, now becoming just a salty swamp. Other water, in fact most of it, is subterranean water which is captured by an ancient irrigation system developed by the Persians but used by the Chinese for two thousand years - the Karez irrigation system. It consists of capturing and channelling glacial meltwater from the surrounding mountains into underground tunnels from where it is extracted by thousands of wells to irrigate the many crops grown in the area. Over-use is a developing problem. Once, the tunnels trapped water only 8m below the surface. Now the water is found only 40m below ground level.

It is in this torrid environment that the Turpan Eremophytes Botanic Garden has been developed. The present director, Professor Dr. Guan Kaiyun, also Deputy Director of Science for the Province, arranged our tour of over 6000 km, to visit key spots in the province. The gardens were one of the many highlights (helped, no doubt, by a special NZ-type meal of barbequed lamb, roast potatoes, sweet potatoes, pumpkin and broccoli prepared by the staff. A very unusual exercise for them!).

The Turpan Botanic Garden is the largest in China. Windy, often experiencing levels which reach 8 on the 12 point Beaufort scale; dry, temperatures well below freezing in the winter, skyrocketing in the summer and with minimal precipitation, although climate change is beginning to lead to a small increase in the latter. Finding plants which are sufficiently deep-rooted to be able to search out the ground water, is a critical area of research.

The garden started as a sand-control station in 1972 and became a botanical garden in 1976, focussing on sand-fixing plants and also on Chinese herbal medicines, many of which are derived from desert plants such as *Ephedra* and *Sophora*. It aims, as an Eremophyte (desert plants) Systematic Garden, to grow in an *ex-situ* environment arid, rare and endangered desert plants, and

Flaming Mountains near Turpan, reputedly the hottest place in China

fruiting and ornamental halophytes (salt tolerant plants) which might have commercial outcomes. Among the 700 different species grown in the garden are many of medicinal value, most unknown to us except for a few genera such as *Datura, Oenothera* and *Morus* (Mulberry). There is also a fruit garden. Not surprisingly it is the National Germ Plasm base for grape varieties so important to the economy of the region. Also grown are the main Chinese collections of *Tamarisk* and *Calligonium* species, many of which are deep-rooted.

Selecting plants, particularly native ones, which can grow with a limited water supply and help green the desert areas is a major aim of the garden. An outcome has been the planting of each side of the 464km road, highway 312, which passes through the Taklamakan Desert, with deep-rooted species of *Halaxylon*, *Calligonum*, *Tamarisk* and *Poplar diversifolium,* which require only a small amount of water, although they are trickle irrigated in the summer, the water being drawn from 40m below the surface. The plants stop the road being covered by sand which in a wind-storm can completely bury it in less than an hour.

The garden also has a fine example of the Karez irrigation system which is used to assist in watering the garden.

Karez irrigation channel

The second botanical garden visited was the Yili Botanical Garden, different in many ways, and situated in the Yili River valley which lies between 2 east-west branches of the Tian Shan Range. The eastern end of this historically significant valley is narrow and opens to the west into a broad plain, over 200km long, that leads toward the border with Kazakhstan.

Pathway through the Calligonum sp. scrub

Pukeiti members at the gates of the Turpan Botanic Garden

Grassland covers the eastern end and the valley floor is green, irrigated by the Yili River, which waters vast areas of corn, cotton, sunflowers, melons, fruit trees, walnuts and even lavender, their fields edged with rows of tall narrow poplars. It is the most productive region in the province and has been cultivated for millennia. Sheep, cattle, and goats are grazed on the grasslands on the sides of the valley and in the summer months are taken up to the alpine pastures which give way at the higher altitudes to spruce and juniper forest.

The rolling Nalati grassland is where in summer the Uighur and Kazakh peoples, housed in their yurts, tend their flocks, bringing them to the valley floor for the winter. After the winter snows have melted wild flowers emblazon the grassland, among them tulip species which are the fore-runners of the modern garden varieties.

In this setting is being developed the Yili Botanical Garden. Yet to be formerly gazetted as a botanical garden, it is hoped that official recognition will be granted by 2020. It covers an area of 35 sq km and is situated on the valley side near Nalati between an altitude of 800 - 3000 m. The area includes many habitats ranging from swamp land at its base to alpine areas at the summit. It all can be covered by up to metre of snow in the winter.

The site previously was heavily grazed by goats, leaving a carpet of poisonous nettles and monkshood plants, unpalatable even to goats, but was chosen because it was the habitat of a number of rare and disappearing native plants. These include a species of apple, *Malus sieversii,* considered to be one of the original types from which modern cultivars have been developed. Scattered around the

Denothera stricta

Datura innoxia

Cappatis spinosa

Yili Botanical Garden

Sunflower with visitor

Dahlia with visitor

hillsides, these wild apples, many over 200 years old and in senescence, are succumbing finally to insect pests. Other trees include the original apricots and plums at various altitudes, wild like the juniper, poplars and spruce found at the higher levels.

One of the main purposes of establishing the botanical garden, which we were privileged to visit as it is not yet open to the public, is to restore the original ecology, so that the plants, particularly the apples, can successfully regenerate in their natural habitat. The goats, which have eaten all the young apple seedlings and enjoyed the ripening fruit, even climbing the trees to get them, have been removed. People occupy their primitive houses only during the winter months, limiting environmental degradation. Seedling apples have been reintroduced. These steps are the beginning of the ecological restoration project.

Additional aims of the garden are to trial plants which are a resource for both medicine and aromatics, trial those which might provide a basis of the cut-flower industry for the area [e.g. tulips, foxtail lilies and paeonies which enjoy the dry continental climate of the region], collect old apple cultivars to ensure diversity, and to provide an environment for the enjoyment of plants. To this end areas have been extensively planted in blankets of coloured annuals and perennials which are cut down after flowering and regrown to flower each spring and summer. Education, too, by providing the knowledge which is essential to ensure conservation of endangered species, is a significant goal, particularly geared to assist those who for generations have been little more than subsistence farmers grazing their animals in the natural environment.

Malus sieversii amound the *Cosmos*

Xinjiang, a name historically given to the region, means 'new frontier'. Present day development appears to make the province the new frontier of modern China today. High speed trains and new airports connect it to the rest of China; multi-lane highways tie together new well-planned and planted cities even though they are hundreds of kilometres apart; new agricultural practices have made this the largest cotton growing area in the country; 40% of the world's tomatoes are grown here; and recently opened, a new railway through Kazakhstan connects China to central Europe - the new 'Silk Route'. It is expected that the new Yili Botanical Garden, will become a project of national importance. Its involvement with ecology, environment, economic botany and education collectively gives a new perspective to the meaning of a botanical garden.

Following our visit local and provincial officials visited to assess the value of the garden and consider funding additional to the considerable investment already made. We hope that the concept impressed them as much as it did us. As a botanical garden it is an important venture not only for China but the world.

PS Wonderful news just through from Guan to say that the Yili Botanic Garden has been awarded 200 million Yuan over the next 3 years.

First left: Dr. & Associate Prof. LIU Huiliang, the deputy Director of Yili Botanic Garden; second left: Prof. & Dr. GUAN Kaiyun, Deputy Director of Xinjiang Institute of Ecology and Geography, the Chinese Academy of Sciences of China, Director of Yili Botanic Garden; third from left: Mr. XI Ruishan, Director of the General Office, Yili Botanic Garden and the Head of the Wild Forestry Farm of Xinyuan County; fourth from left: Dr. LI Wenjun, a staff member of Xinjiang Institute of Ecology and Geography.

Identifying plants

MY FAVOURITE PLANTS

Gordon Collier

My choice of favourite plants of yesteryear would be far different. But gardening now on a town section, with pumice soil, far smaller than the former acres, certainly narrows down the choices. In spite of the limited size of my garden at Taupo, visitors have been surprised by how many different plants can be grown here, although lack of space limits the number of trees.

Starting off with my favourite tree, several spring to mind. How could I not choose *Cornus nuttalli*, grown from a cutting given me by the late Felix Jury, (my tree arrived here in a pot and has grown to dominate its

Cornus nuttalli

allotted space), *Cornus* 'Greenvale' which promises so much, or *Cornus alternifolia* 'Variegata' or even *Betula* 'Jacquemontii' with its dazzling white trunk? But it is none of these.

Years ago at Sissinghurst, I saw a tree I badly wanted and duly imported. *Elaeagnus angustifolia* was a favourite of mine sited in the Silver Garden at Titoki Point, but when I planted *E. pungens* 'Quicksilver' my prized import, it was unhappy there.

R. 'Rubicon'

Easy enough to grow from cuttings, I planted a few on the street front of my new garden; they thrived, suckering gently. *E.* 'Quicksilver' soon grew into a small tree, no thorns like the other species and with leaves the most intense silver. It is said to be the most silver-leaved tree of all.

Choosing a favourite shrub is no easier. My all-time favourite is however *Genista monosperma*, now correctly *Retama monosperma*; its long silky stems are covered in spring with milky-white fragrant flowers. Growing to about 3m it does require a warm position but is attractive all year round.

There are so many worthwhile shrubs but I do want to mention the dracophylums, native to many parts of the country. Dracophyllums enjoy Taupo conditions and several from the Chatham Islands are making good progress. Having lost the star of the genus, *D. traversii,* I make do with *Dracophyllum menziesii* which is rarely seen but is equally attractive. While on the subject of native plants I find *Dodanaea* (ake ake) invaluable for a smaller garden with its most attractive peeling bark, and for providing shade. This species is not however confined to New Zealand. *Buxus rotundifolia* is a stand-out in this garden too, reaching about 4m with pendulous branches and attractive green leaves and no sign so far of the dreaded buxus blight.

There are so many beautiful rhododendrons available that this selection is a most difficult choice. My absolute favourite is *Rhododendron* 'Rubicon.' Bred by the late Ron Gordon in his Taihape garden, this rhododendron is now seen almost everywhere. There is no need to describe this hybrid as it is beautiful in every respect – glossy leaves, an outstanding red truss and a lower growing, rounded habit make it an ideal shrub for smaller places.

For a climber I have chosen *Vitis vinifera* 'Purpurea.' This beautiful easy 'grape', though deciduous, gives

Dracophyllum menziesii

Geranium 'Rozanne'

months of beauty. When autumn comes its handsome leaves turn claret-red, deepening as the season advances. Trained along the eave line of my garage, I also use it as a 'ground cover', allowing it to reach only about 30cm in height before pruning. My stock came from Eastwoodhill where it used to festoon a pavilion. Of course some clematis hybrids grow here also.

Ferns are a favourite. *Matteuccia struthiopteris*, the 'shuttle cock fern', likes a cool, moist position where it will slowly colonize, its plumes of feathery green leaves making a perfect foil for hostas and other boggy plants. I imported this in 1962, bringing it from England through the Panama Canal, in the 'Ruahine.' It is a generous plant and now it is seen in many gardens. *Convallaria majalis* 'Variegata', is another special import from that voyage – sadly the double form got sea sick and died en route; can anyone oblige with this to add to my collection of these lovely plants?

Hostas have long been a favourite and a few shady spots here seem to suit them. A seedling I raised from *Hosta* 'Halcyon' is a small chunky plant with cupped leaves, intensely blue and resistant to slugs. I call it *Hosta* 'Blue Baby', bigger than *H.* 'Mouse Ears' but smaller than its parent. A sister seedling called *H.*'Emerald Isle', is slightly larger, just as chunky but with dark, ribbed green leaves.

Hellebores have been my downfall. After Ron Gordon left us I played with the red-flowered progeny he left behind. Many generations later I named a strain of red-flowered seedlings, *Helleborus* 'Flash Gordon', combining our two names. This has been quite successful and comes largely true to colour; I grow the parent plants in my daughter Meredith's isolated Taihape garden. There are some imposters around so don't blame me if a white form bearing the same name turns up!

Dan Hinkley writes lyrically about cranesbill geraniums in his book 'The Explorer's Garden', where he describes the many hybrids and varieties available in America. He does not mention the English hybrid *Geranium* 'Rozanne' which has taken many of our gardens by storm. It is long blooming and its very large violet-coloured flowers have to be seen to be believed. Australian raised *G.* 'Criss Canning' is a blue cranesbill, and so too *G.* 'Annette',soon to be released; both seem easier to grow than the older *G.* 'Johnson's Blue'. These perennials are much neglected but Heirloom Perennial Nursery in Richmond is making amends.

Bulbs. Like shrubs and trees there are many bulbs to choose from. Snowdrops romped in my former garden. Of those that shifted to their new home *Galanthus reginae-olgae* and its subspecies *vernalis* have survived and thrive. When I mentioned to a visitor that I was a closet galanthophile, I got a sideways look!

Paris durongensis

Likewise trilliums; a good pot of *T. luteum* reminds me of my former 18 strong collection.

Ron Gordon was responsible for the introduction of paris and many arisaemas too – the latter now have almost cult status. *Paris durongensis* sprang up from one of Ron's pots and, planted out, flowered at an impressive 1m high, bearing large characteristic starry green flowers; not only that, it proved stoloniferous, producing nine flowering off-shoots. Impressive indeed, and it gets the nod as currently my most favourite plant.

Helleborus 'Flash Gordon'

HOLLARD GARDENS

90 YEARS OF COLLECTING RHODODENDRONS

Sandy Powell

When Bernie Hollard first started gardening on his Kaponga [Taranaki] property in 1927 he planted a wide range of plants, most of them new to the New Zealand market. He would give anything a go and would make the most of micro-climates and the topography within the garden so he could grow plants that would otherwise not do well in an open environment. However he couldn't look past the trusty *Rhododendron* for reliable growth, health and masses of colour over a long period of time.

Now 90 years on, the majority of rhododendrons that Bernie planted are still in the garden today. His grandmother loved gardening and his grandfather grew rhododendrons (notably 'Sir Robert Peel') so perhaps it was always in Bernie's blood that rhododendrons would be a staple plant in his garden.

He was a hard-working and patient plantsman and liked to try his hand at plant breeding. He believed that the best plants were the ones worth waiting for. A classic example of this and for which he is best known is *R.* 'Kaponga'; it took 12 years to flower. The original specimen of this hardy, red flowering rhododendron still takes pride of place in the garden today.

R. 'Kaponga'

Bernie would select a plant according to whether it had personal appeal, whether it would fill a gap in an existing collection of species or varieties and whether it was choice among its kind. If a plant wasn't doing well, he would either shift it to another location within the garden or gift it to a friend.

Bernie's garden was always jam-packed with plants and as most of them were either rare or unusual or, more recently, of heritage value, the challenge of protecting them from overcrowding became apparent as the garden started to mature. This continues to be an ongoing battle because it is a fine line between cutting less important stuff out and letting the wind in!

Nothing lasts forever though, so if it is looking likely that we might lose a heritage rhododendron, we do our best to either shift it or propagate it. Failing that sometimes you just have to accept that you can't save every plant. We also have

the luxury of having 'sister' gardens in Pukeiti, Tupare and Pukekura Park that were all established about the same time as Hollard Gardens. The beauty of this was the plant sharing that went on between the four gardens and quite often a specimen not doing so well at Hollards will be thriving in one of the others, making the removal of a heritage plant seem less disheartening.

The plant database (Iris BG) that is shared across these four gardens has been a real asset. Each plant within the garden is given a unique number. Subsequent information is then added in the way of location, where it was sourced, when it was planted, health status, photos – the list is almost endless. All this means that we can easily look up a particular plant and see who else has it so that we can make informed decisions about whether to keep it or not.

When Bernie created his garden it was for his own pleasure, but it soon became a garden of interest for various groups looking for an outing. As the years went on so did the number of people visiting the garden and Bernie realised that he needed to protect this special place, first gifting it, in 1982, to the QE 2 Trust who subsequently transferred ownership to the Taranaki Regional Council in 2002.

Visitors were predominantly garden enthusiasts aged over 40 years, but current strategies have widened the audience to include a more diverse cross-section of the public. Like anything there are trends that come and go and plants are no different. So although rhododendrons might not be the 'in' plant, visitors usually leave Hollard Gardens feeling inspired and asking where they can be purchased from.

R. 'Milton Hollard'

A family group admiring *R.* 'Milton Hollard'

A lot of the older or species rhododendrons are hard to come by now, and mostly what you see for sale are the common well-doers that the general public want. But every so often a new cultivar will appear or I come across a species rhododendron that will complement or add to Bernie's existing collection and I feel satisfied that Bernie's legacy will live on well into the future.

CHANGES AT PUKEITI

Greg Rine – Regional Gardens Manager

Pukeiti has recently reached a significant milestone in the Council's upgrade programme with the opening of the Rainforest Centre by the Governor-General Dame Patsy Reddy on September 9th.

This new facility means that the world class garden can now offer a world class visitor experience.

And that's very important in terms of creating a quality community asset as well as building the momentum around Taranaki as a nationally competitive tourist destination.

For the gardeners amongst us, Pukeiti's reputation and standing has been something we've grown up with, however in today's world we need to build clusters of experiences in and around the garden so that we can attract a much wider group of people than our traditional visitor.

The Rainforest Centre gives us a WOW! arrival experience; people know they've come to a special place, and once in the building they get a taste of the history and culture of the garden with some engaging story-telling about the local iwi and hapu, the pioneers that displayed that typical Anglo-Saxon zeal of the day only to be gradually beaten back by the climate and topography of the area, then of course the story of Douglas Cook's quest to find a great place to grow the beautiful rhododendrons and all that which followed after the first land purchase in 1951.

The building also features a great hospitality experience in the form of the Founders Café. It has a contemporary feel and due to demand we've extended the opening to a 7 day-a-week operation until the end of March.

Down below we've still got the Rata Room that is available for functions and has the latest audio-visual equipment for various needs. It can also be used as a spillover area for the café during busy times.

The covered areas (Vireya Walk and Kokopu House) are now an interesting and compelling visitor proposition. The landscaping is intended to have an exotic feel which features the delightful vireya rhododendrons. It's covered, so is an all-weather destination (the rain is not much of a barrier anymore!), it's wheel-chair accessible so everyone can enjoy it and it has lighting throughout which creates summer evening opportunities for public and private events.

Further down we have our Waterwheel Walkway which connects visitors directly with our rainforest, the intrigue of the working waterwheel and the beauty of the mountain stream.

But of course we want to get people into the actual rhododendron collection itself and we've done that through:

- improved access with track upgrades;
- new wayfinding - and you know it works when the questions /complaints virtually stop (you'll never have the perfect system because people will always be people!);
- world class story telling. We've told the story about how the rhododendrons came to be in the western world and we've got another suite of story panels ready for production based

on evolving environments;

- great colour displays. Critically we want to continually improve the collection and how we display it, a never ending challenge but one we relish;
- treehouses. These have been a great hit. They are multi-purpose:
  - a refuge/destination for people on their garden journey;
  - a place for formal education. Designed to safely house a classroom of kids, they are used for activities as part of the Rainforest School;
  - a place for informal education eg 'Secret Kid's Treehouse Trail' – a fun educational experience where you pick up an activity bag from the Café and take the secret trails between each treehouse and learn about the animals of Pukeiti. We publicized this activity prior to the October school holidays and were inundated by families over the 2 weeks.

Further works include the landscape installations, the rationale for these being to create something quite different from the traditional Pukeiti genre of the rhododendrons in the bush.

Of these, the Keiller Rhododendron Garden, a joint project with the Pukeiti Rhododendron Trust, is now starting to look really good with the growth of the plantings and the gradual softening of the structures, with the ultimate aim of inspiring gardeners to grow rhododendrons in their own gardens.

The Misty Knoll, is the secret garden by the Lawn where the aim is to create a sense of surprise and escapism. The growth of the plants is the key to success here.

The final installation is the Weka Wetland, a project for this summer and it has some overt and hidden purposes. Overtly, the design is a contemporary twist on a New Zealand wetland. The hidden purpose is through some subtle story-telling to raise the awareness of the value of wetlands generally.

And the name? There used to be wekas at Pukeiti and through the Council's pest eradication work, one day we may be able to consider bird reintroductions.

The current project is the Lodge, with a construction window of this summer and autumn, a new build with a classical feel and of course a home for the Trust members. This project will see the end of the major developments in the main garden areas of Pukeiti. The landscaping will be classical to match the architecture.

Governor-General Dame Patsy Reddy and Chairman of the TRC David McLeod

The member's lounge and studio flat will be wonderful facilities for members and will be complemented by other areas in the building for functions and story telling.

There is more to come for Pukeiti in terms of the recreational opportunities in the rainforest but now we have a world class garden with world class facilities and we have to activate these developments through our marketing, primarily to our region and to our national audience.

These experiences and interactions are Pukeiti's future, but always its foundations will be the rhododendrons in the rainforest.

Misty Knoll

TRIBUTES TO THOSE WHO PLAYED A ROLE IN PUKEITI'S BEGINNINGS

Gordon Collier

From its inception, Pukeiti has been extremely fortunate in having outstanding people in its key management roles, those of Curators and Secretaries, dedicated to the vision that is Pukeiti. It is remarkable that in fifty years there have been only four curators – but more of their contribution later.

The Secretaries.

Geoffrey Broker was the founding secretary, a person particularly suited to those early days, kindly, dignified, courteous and meticulous in his work. He kept the books, there is no doubt about that, somehow managing to control the spending of scant resources. He also ran the extra mile for Pukeiti, writing thank you letters to everyone who in even the remotest way had contributed to the cause, either by donation or by the gift of plants. These letters were a pleasure to receive, of necessity brief and signed in his neat handwriting. Looking back, I realize how valuable Geoff's attention to this detail was and how much he fostered the Pukeiti dream.

R. 'Jack Anderson'

Geoff and his assistant secretary Joyce Lindsay were always present at Pukeiti on Members' Day, hanging out in a small white tent on the then vacant ground before the extensions were built at the end of the Lodge. In the early days, the drive for new members was much more aggressive than it is now and Geoff and Joyce were more than willing to oblige anyone who poked their head inside the tent!

As Michael Hudson will remember, Board meetings in the fifties were spirited affairs, sometimes acrimonious. Imagine all those independent people trying to work together on this impossible project – no wonder there were differences. But Geoff Broker was the mediator and usually managed to keep the lid on things when the situation threatened to get out of hand! I remember him with great affection; he was possessed of a friendly disposition and ready sense of humour. He needed all these attributes while helping to steer the unruly ship that Pukeiti was in those early days.

Geoff was a chartered accountant in the Southern Taranaki town of Patea. He also happened to keep the books for Russell Matthews, and, I think, Griff Williams of Hawera. (Griff was the first Chairman of the Board and also Chairman of the Local Executive). With those connections, Geoff didn't stand a chance and was roped in as secretary from the outset! He would arrive at Tupare at Russell Matthew's request once a

month. Often their business lasted late into the night and Geoff would stay over. Pukeiti was a well worn topic on these occasions, and sometimes there were two crystal glasses on the kitchen bench next morning. The two men were great friends – Geoff referred to Russell as 'Russ,' and, (out of earshot) Geoff was 'dear old Geoff.' Come to think of it Griff Williams was 'dear old Griff' as well!

Jack Anderson took over Pukeiti's books in 1961, a position he was to fill for the next 24 years. Like his predecessor Jack had little interest in plants at the beginning of his work for the Trust but soon developed a passion for the place and a consuming interest in its affairs. He would often take overseas visitors up to the garden in his own time, and with his wife Jill, often hosted Board members at his home in Gover Street. In latter years the two of them were regular members of the working bees called to pack plants for members.

Keeping the Pukeiti books was never easy and Jack guided the Trust through some trying times. Occasionally during Board Meetings his quick sense of humour was sorely tested and if things went too far, he had no difficulty expressing himself! But Jack was always ready to listen to others and give a considered viewpoint. He played an important part in setting up the Pukeiti Trust Fund.

Jack Anderson was a valued friend, remembered for his wry smile, quick humour and his concern for the financial affairs of the Trust, and above all, for his dedication to the Pukeiti dream.

The Curators.

Les Boisen was appointed Curator in 1954, and with his young son was in residence at the Lodge when I first visited in the spring of that year. Pukeiti was a pretty wild place then as I have described before, a wilderness of cut-over bush laced by a few raw tracks. Apart from the lines of plants out front, there was little gardening going on. Les managed without any modern facilities; a wood fired range (only recently removed from the kitchen) provided the cooking facility as there was no electricity. There was no mail delivery either so it was

R 'Sir Russell Matthews'

.little wonder his stay was relatively brief. From memory his duties were mostly custodial but this retiring man was a welcoming front person for Pukeiti and his son, a keen hunter, did wonders in reducing the goat population! But as fast as he cleared the goats out, another lot came down from the Pouakai Ranges, and the rhododendrons had a hard time!

By the time I returned to Pukeiti in 1956, things had changed. Rob Bayley and his wife Claire and little daughter were living at the Lodge. Rob was the ideal person for the job of curator, being young, strong and enthusiastic. He was also very good with machinery and building – in fact he could turn his hand to anything. But the garden was still pretty raw – possums and goats were of plague-like proportion and overnight the latter could demolish a new planting. Needless to say Rob was a good shot with a rifle.

An enthusiast, Rob quickly threw himself into the spirit of the place. The shrubs had just been set out in the Hybrid Area. What a desolate spot this was then! The soil, probably sour and in places water logged, had been 'prepared' by plough and harrows, certainly far from the ideal the proponents of Pukeiti had proclaimed. Blackberries lingered round the raw bush margins. That spring, there was a howling gale and many of the new growths on the rhododendrons were blown off. A few weeks later I went with Rob to have a look at progress – I remember his relief and excitement to discover new growth emerging. (A few years later, after a further gale, Russell Matthews took it upon himself to plant unauthorised rows of bamboo as windbreaks – a short lived exercise!)

During Rob Bayley's time, as well as track forming and planting, the drive was curbed and sealed, the Ireland glasshouse erected (since removed to make way for the Conservatory) and the main lawn sown – three times! In 1957 Rob and his uncle designed and built the waterwheel, a great feat of engineering that not only pumped water to the Lodge but also generated the first electricity. Rob and Claire moved to Gisborne in 1961. Their departure left a gap that seemed difficult to fill. Their contribution to Pukeiti was considerable.

Rob Hair, Chairman of the Executive, offered to take over the position vacated by the Bayleys, and with his wife Ina, moved to the Lodge. Farming near Pukeiti, Rob had always taken an active interest in the fledgling garden and with his passion for native flora and Ina's

R. 'Geoff Broker'

outstanding qualities as a hostess, they proved ideal to take over the Trust's frontline responsibilities. By now the garden was beginning to take shape, even taking on an air of maturity.

Rob was a neat and careful worker, taking great pride in every thing he did. While taking charge of all facets of the garden, the regeneration of the forest was uppermost in his mind, and many of the native plants and rimus now emerging along the margins of the walks were planted by him. He was responsible for the formation of the native border leading away from the main lawn and kept this in perfect order. While this part of the garden no longer receives the love and care lavished on it then, it is still a great feature and fitting legacy.

Despite an outwardly serious manner and being quite capable of calling a spade a spade, Rob Hair was always ready for a joke! He had a particular affinity with Ron Gordon, whose father had earlier employed him near Taihape. Ina Law was a neighbour. Whenever Rob and Ron met, there was continuing banter revolving about the respective merits of rhododendrons and natives. But Rob had the last word when it came to planting, well illustrated on the occasion when a member gifted some exotic ferns which were intended to be a worthy addition to the garden. They were accepted with solemnity and due thanks but never seen again!

The Hairs' time at the Lodge was also notable for the way Ina Hair carried out her duties as hostess, well liked for her gracious, friendly and charming manner. The building was kept in perfect condition and there were always fresh flowers in the members' lounge. In this she was assisted by the Ladies Committee who were zealous in their attention to Pukeiti. When Board meetings were held at the Lodge, a marvellous luncheon was invariably served – on Ina Hair's best china.

Rob Hair was largely responsible for the first clearings and plantings of the large-leafed species in the Valley of the Giants. How thrilled he would be if he could see what an outstanding feature this part of the property has become. Loved and respected by all, Rob and Ina retired to New Plymouth late in 1968 but continued to take an active interest for years to come.

March 1969, saw the appointment of Graham Smith as fourth curator, the beginning of a new era for Pukeiti. Graham was the first professionally trained horticulturist to actively take charge of the garden. He brought with him a brand new Diploma from Kew Gardens, a little knowledge of rhododendrons and, as he recalls it himself, a scant knowledge of New Zealand flora. In the years since, he has been successful not only in managing the garden, but greatly raising its profile and bringing it to today's high standard, by increasing the plant collection enormously and furthering the conservation of the entire property. Graham has carried the Pukeiti banner with quiet authority and become known internationally for his knowledge of the genus *Rhododendron*. He is in demand as a lecturer world-wide and has patiently led many trips to varied destinations overseas with the minimum of fuss; his care sometimes extending to the sick and the wounded!

Graham has been tireless in his work for the Trust and it is fitting he has been made our first Director. He has stuck to the Pukeiti dream through thick and thin, always acting with dignity and respect for others. Thank you Graham, for your immense contribution. Someone in the future will doubtless continue this tribute.

So a warm thank you to our past Secretaries and Curators. The members salute you.

Right: The iconic view of the waterwheel from the new Tree Top Walk.

RHODODENDRON REGISTRATIONS 2016/2017

Brian Coker

There have been no new New Zealand cultivar registrations over the past year.

Registration should be considered not only for new cultivars which it is proposed to name and distribute but also for any which may have been around for sometime but have not been formally registered. If you have your own cultivars which fall into this category or you are associated with such plants then now is the time to register them. A very attractive Certificate of Registration is provided by the Royal Horticultural Society on completion of the registration.

Formal registration is important as it becomes an official record of the details of the cultivar, including parentage (if known), details of the hybridiser, grower, introducer and registrant, and specific details of the cultivar such as plant habit, leaf and flower.

Where plants are introduced commercially it also ensures that names are not duplicated, thus avoiding confusion, and for this reason alone it is important that a proposed name is checked before a plant is distributed.

Registration forms are available on the NZRA website (www.rhododendron.org.nz) under the Registration tab or can be obtained from the Registrar.

An RHS colour chart for determining flower colours accurately is available for loan from the Registrar, although RHS colour chart references are not essential for registration purposes.

The Registrar also holds a copy of the RHS Rhododendron Register and Checklist (together with updates) which lists all formally registered *Rhododendron* cultivars together with other named but unregistered rhododendrons. You are welcome to contact the Registrar if you have any queries, such as parentage or formal description, regarding any rhododendrons.

New Zealand Rhododendron Registrar
Brian Coker

'Stoneycrop'
8B Barnsley Crescent
West Melton 7618
Phone: 03 347 0010
Email: b.hcoker@xtra.co.nz

R. 'Frosted Candy'

R. 'Egmont'

NEW ZEALAND RHODODENDRON ASSOCIATION INC.

You are invited to join the New Zealand Rhododendron Association

We publish an annual Journal in association with the Pukeiti Rhododendron Trust and newsletters twice a year.

A Conference is held annually. The venue of the 2018 Conference will be Nelson. 3 November - 6 November 2018

The annual subscription is NZ$40 for an individual and NZ$45 per couple.

Dues should be sent to: Mike Wagstaff, 35 Awakino Road, Te Kuiti, 3910, New Zealand. Email: nzratreasurer@slingshot.co.nz

Secretary: Christine Wilson
President: Joy O'Keeffe
Email. secretary@rhododendron.org.nz

www.rhododendron.org.nz

THE RHODODENDRON CAMELLIA AND MAGNOLIA GROUP

If you love these plants join us!

Benefits include a Yearbook and Newsletters. Visit **www.rhodogroup-rhs.org**

Royal Horticultural Society

YOU ARE INVITED TO JOIN THE AMERICAN RHODODENDRON SOCIETY

Benefits: Quarterly Journal, Seed exchange and conventions.

Annual Subscription US$40.
Executive Director, PO Box 525
Niagara Falls, NY 14304-0525 USA
www.rhododendron.org

R. spinuliferum

Rhododendron Species Foundation

... dedicated to the conservation and distribution of species rhododendrons

Go to ***www.rhodygarden.org*** and browse through the mail-order catalog for a wide selection of rare and unique rhododendrons and plants including new introductions. *Remember - anyone can order!*

Become a member today and receive great benefits!

PO Box 3798 Federal Way, WA 98063 ~ 253-838-4646

Pukeiti
Pukeiti Rhododendron Trust Inc.

PUKEITI RHODODENDRON TRUST INC.

New Members Welcome

www.trc.govt.nz/gardens/pukeiti/pukeiti-rhododendron-trust/

Postal address	PO Box 1066, New Plymouth 4340
Location	2290 Carrington Rd. RD4
Secretary	Anne Howard Email: pukeiti@pukeiti.com
Chairperson	Gordon Bailey landscape@queenstowncountryclub.co.nz
Members' Committee Chairperson	Heather Robson

Subscription $35 per household.

Taranaki Regional Council

TARANAKI REGIONAL COUNCIL

www.trc.govt.nz

Office hours	Mon-Fri 8am - 5pm
Postal address	Private Bag 713, Stratford 4352
Location	47 Cloten Road, Stratford 4332
Phone	0800 736 222 (06) 765 7127
Email	info@trc.govt.nz
Environmental hotline	0800 736 222

Regional gardens	regional.gardens@trc.govt.nz
Greg Rine	Phone: (06) 765 7127 Mobile: 027 240 2470
Andrew Brooker	Phone: (06) 765 7127 or Phone (06) 752 4141 Mobile 0210 264 4060

The New Zealand Rhododendron

Volume Five
2017

Rhododendrons at Crosshills