The New Zealand Rhododendron

Volume Nine 2021

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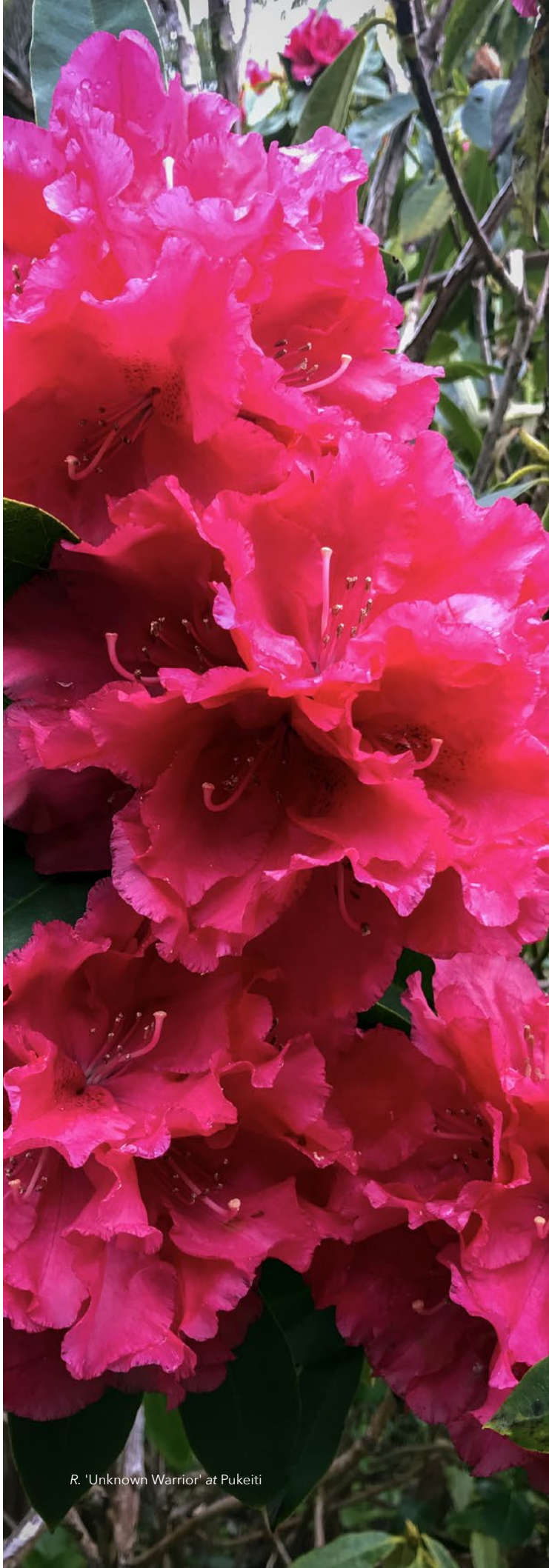
New Zealand Rhododendron Association



R. 'Unknown Warrior' *at* Pukeiti

FOREWORDS 2021

This year marks the 70th anniversary of the establishment of Pukeiti by Douglas Cook and an enlightened group of Rhododendron enthusiasts we now refer to as the Founders. What great vision these founders had to develop a Rhododendron garden in a rainforest. Many people over those 70 years have contributed to the garden we have today.

- The Ex- situ Rhododendron Conservation Strategy continues to be a major focus for the Board and continues to make progress.
- The Boards continuing to support the Massey University Phd student who is undertaking research on the DNA make up of Rhododendron Maddenia. Early results are starting to emerge and these will be published in due course.
- As part of the Boards 5-year Rhododendron Conservation Plan partner gardens have been identified at other locations outside Taranaki. These partner gardens have agreed to grow ex-situ rhododendron species that don't grow well at Pukeiti. This means we can broaden the range of rhododendrons that can be conserved through the ex-situ strategy.
- We are now into our third year of working with the TRC in supporting the work of the Collections Officer. Through a set of KPIs. Many collections have been identified and willingly provided plant material of endangered species rhododendrons to be taken and grown on as part of the Boards *Ex-situ* conservation strategy. The Board has also agreed to extend its support for this work for a further three years.

Unfortunately, due the COVID-19 the AGM had to be cancelled but some members were able to join in the celebration marking the Trust's 70th anniversary, with speeches, cake and bubbles. The AGM will be rescheduled at some time yet to be decided in 2022.

The Board is holding a strategy day in January 2022 to map out a forward programme for the Trust for the next ten years. Part of this will require the Board to look at all areas of its operation. Once the Board has developed a draft way forward it will be shared with members.

Finally, I must commend the Taranaki Regional Council for the way Pukeiti looks, while over the last few years there has been a significant concentration on upgrades to infrastructure in the garden. The bulk of that is now completed and significant work has now begun in the garden itself. The Valley of the Giants has been cleared and is the best it's ever looked. Other areas are being cleared in preparation of receiving plants from the Ex-situ Conservation Strategy project. The garden is well worth a visit at any time of the year.

Gordon Bailey - Chairman
Pukeiti Rhododendron Trust

Who could have imagined that NZRA would have had to cancel two annual conferences in a row! You will all be aware that Rhodenza Taranaki 2021 had to be abandoned because of the COVID19 pandemic. The Organising Committee had prepared a wonderful programme for us that included a whole day at the star attraction, Pukeiti. Other garden owners had prepared for our visit too, but it was not to be. We all feel for these hard workers in their disappointment and thank the committee of Lynn, Andrew, David, Diane and Karl sincerely.

An aspect of Rhodenza Taranaki 2021 that was particularly important to me was the close links it was going to demonstrate between the NZRA and the Pukeiti Rhododendron Trust. Members of the Organising Committee belong to both organisations and Pukeiti was to be our main host. Although I have been a member of Pukeiti for over 40 years, purchased plants from the Plants for Members list and visited from time to time, I did not fully appreciate the breadth of activities undertaken until after I first participated in Trust Board meetings in 2020. The Members' Committee and the Plant Collections Forum are good examples of how members are contributing to the maintenance and growth of the garden. The Rhododendron *ex-situ* Conservation Project is another illustration, which was born from a fusion of initiatives in the NZRA and Pukeiti. NZRA's Species Subcommittee may have pioneered the search of gardens for species 'in danger' to propagate and safeguard. On the other hand, Pukeiti has long been known as a treasure house of species. So when NZRA was invited to join the New Zealand Rhododendron Species *ex-situ* Conservation Project, led by my good friend and fellow scientist Marion MacKay, we did not hesitate. Working together has enabled us to pool the knowledge and other resources of both organisations. Besides it is much more fun working in a larger team! Reports of progress are an important feature of NZRA Council and Pukeiti Trust Board meetings. Marion has written a project update for this volume of *The New Zealand Rhododendron* – read and enjoy. I am eagerly anticipating our team's annual 'Identification and Labelling' visit to a Dunedin Garden that Marion mentions in her article. I presented on the project, with specific reference to this garden, earlier in the year to the Dunedin Rhododendron Group, as well as to the Species Symposium held by the Rhododendron Species Foundation in Seattle (by Zoom).

There is plenty of other good reading in this volume. I am particularly looking forward to the two photo essays, one describing a visit to Pukekura Park on the shortest day and the other featuring the Maddenia Treat marking Pukeiti's 70th birthday. As far as the other articles go, I think I will head first for the article on the Kingdon Ward collections at Pukeiti, followed by the description of the Uses of Rhododendrons. However, there is plenty more of interest.

Sue Davies – President New Zealand Rhododendron Association Inc.

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R. goodenoughii at Pukeiti

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INTRODUCTION

JEWELS IN OUR GARDENS

Lynn Bublitz

The highlight this year for many was to be the Rhodenza Conference in New Plymouth. As with so many other activities planned, Covid, as it waned then waxed as a new strain arrived, forced its cancellation. It did not, however, stop the focus on our own gardens and might have even heightened the joy that plants - particularly, in our case, rhododendrons - can bring. It also reminded us that we are social animals and by working together great things can be achieved. Whatever the future may deliver in this complex world of challenges, gardens, plants and their enthusiasts working together will help these to be addressed.

Rhododendrons, the jewels of our spring gardens, have provided over many years the focus for collectors, and enthusiasts who share their interest and passion. This sometimes even engenders a bit of rivalry!

R. 'Floral Gift'

Early plant collectors, fascinated by the beauty of these plants, brought back to Europe from America and the East, rhododendrons then called by a variety of names - 'Swamp Honeysuckle', 'Rose Bay' tree, 'Alpen Rose' and 'Rhodora' - until Linnaeus gave them the generic name Rhododendron and each type a species name. Azaleas were later included within the genus.

Estate owners along with well-known nurseries of the time, bewitched by the increasing number of these beautiful species being 'found' and realising how great they would look in woodland gardens, paid collectors to bring back new plants. Herbarium specimens were sent to Kew and Edinburgh to be named and seeds sent to the nurseries to be grown and later distributed. Many of the species required special conditions and some even needed heated glasshouses. Money seemed to be no object. Seeds and plants, when permitted, were sent to growers throughout the world when it was thought that different climates might better suit a species' needs. There were many famed collectors. The NZRA and Pukeiti contributed to the last collecting expedition of one of them, Kingdon Ward, when he went to N Burma. (An article about the plants he collected and which were grown at Pukeiti is included in this Journal.) There are still collectors, New Zealanders among them, hunting new species and varieties, but strict rules, both international and national, limit what can be brought into the country.

Rhododendrons come from a wide range of habitats and each species needs a specific set of conditions to thrive. Generally, vireyas are better suited to the north of the country while laponicum species are more suited to the far south. Growing rhododendrons is a constant challenge and many introductions have been lost from cultivation and an increasing number, because of habitat destruction or changing climatic conditions, have been lost from the wild, or are very rare. They are the focus of the *ex-situ* conservation project.

There are over 1200 different rhododendron species named and the odd new one is still discovered, particularly among the vireyas. Over the years thousands of hybrids, using the most appealing species as parents, have been raised. The best hybrids have been registered in an internationally approved process which still continues. This year, 6 new hybrids bred in New Zealand have been registered. Most hybrids have a vigour which is lacking in many of their parents, and have become the rhododendrons of choice.

Initially difficult to propagate, most had to be grafted, the favoured rootstock being *R*. 'Elegans' which often grew more vigorously than the scion and completely replaced it. After World War 2, improved propagation techniques using plant hormones to stimulate root growth allowed most to be grown by cuttings. Relatively cheap and showing an increased colour range these hybrids made rhododendrons one of the most popular garden shrubs. There were few home gardens which did not proudly display at least one. They became so popular that groups of enthusiasts in most western countries banded together forming clubs and societies. New Zealand was no exception, the New Zealand Rhododendron Association was formed, and discussion soon encouraged volunteers to finance and develop display gardens where an extensive range of species and hybrids could be admired and compared by visitors. Public gardens like Pukekura Park in New Plymouth and the Dunedin Botanic Gardens provided the inspiration to improve the appeal. Pukeiti, Tannock Glen, Orton Bradley, Heritage Park and more recently Whangarei Quarry gardens were all developed and continue to be supported by member donations and volunteer efforts. This support though is waning as social imperatives change, and rhododendrons become less popular particularly as gardens become smaller. Climate change will increasingly have its effect too. Many rhododendrons require cold winter temperatures to flower successfully, few can withstand sustained dry conditions, and fungal diseases and pests will become more prevalent. Growing them in pots could be an answer.

Enthusiasts will always find a way to grow rhododendrons of their choice. They also can play a role in conserving rare and endangered species. The *ex-situ* project, further funded by the Sir Victor Davies Trust, is making good progress. Species and their various clones throughout New Zealand have been identified and their details recorded. Scions and seeds are being propagated and, when a suitable size, will be distributed throughout the country to places best suited to the conditions each species requires. Plants will also be offered through the Members' Plant List and registered as part of the distributed collection and assist in the conservation of species particularly of those either rare or endangered.

This would be a great collective outcome in these difficult times which are over-shadowed by the negative effects of climate change and the many other challenges of the modern world.

UNDER THE MOUNTAIN: ORTON BRADLEY PARK AND THE RHODODENDRON GARDEN

Martin Wilkie

Basalt Bluffs in the upper valley below Mount Herbert / Te Ahu Patiki

Introduction

Inside a volcanic crater is not usually home ground for rhododendrons; however volcanoes, like rhododendrons, can come in many shapes and sizes. If they've reached a settled maturity and are comfortably weathering in a temperate climate, they'll likely have fertile soils, sheltered microclimates, and fresh water flowing down wrinkles in their landscape. Christchurch / Ōtautahi was settled by European colonists in the 1850s right next to a pair of ancient volcanoes. Hill suburbs such as Mount Pleasant, Redcliffs (named for the russet colour of basalt lava outcrops) and Scarborough have gradually spread up towards the crater rim of the older northern Lyttelton volcano; the younger Akaroa volcano lies further to the southeast. These two weathered volcanoes each have a sea-flooded crater (more correctly a caldera, resulting from the volcano's upper part collapsing inward following an eruption) making a natural harbour. Together they form Banks Peninsula, a prominent volcanic feature on the South Island's east coast. Otago Peninsula is another. From Christchurch they appear as a range of hills with a ridgeline of craggy summits. On a map however the peninsula is an oval shape, with old lava flows radiating outwards from the two harbours like fingers on a hand, and its volcanic origin becomes more obvious.

Folded into a sheltered north-facing valley at the head of Lyttelton Harbour, Orton Bradley Park is one of the most interesting historic public spaces on the peninsula. Last private owner, Mr Orton Bradley, gifted this 653ha / 1613ac farm at Charteris Bay "for the just benefit and enjoyment of the people of New Zealand" in 1943. It is a modern farm park, owned and run by a Trust, combining practical maintenance with careful attention to natural processes, public access (including through the park to peninsula walking tracks), and human interaction with the landscape, as Orton Bradley intended. The park has a particularly rich mixture of culture and environment, including the nationally and internationally regarded rhododendron collection, which has been developing for 36 years among majestic trees near the park's historic buildings.

The park and other places with a rich history have become of greater significance to Cantabrians since the series of devastating earthquakes beginning in September 2010. One of the consequences of those events has been that a distinctive 'sense of place' and character in many parts of the city and surrounding rural areas can now only be found in memories and photographs. Much of historic Canterbury was literally shaken into the future, a process repeated again and again over three years by thousands of aftershocks. Not only buildings from early European settlement but entire landscapes were reshaped in seconds. Subsequent new structures and landscapes have

made those places where the past is still visible more precious, and Orton Bradley Park is an example of where “many layers of time are visible”, a description of the English countryside by designer Jasper Conran. Meticulous restoration of quake damaged structures such as the original dairy has restored a sense of those layers, as well as the buildings’ fabric. New Zealand has had nearly 800 years of human occupation that we know of, not a great span by world standards but long enough to put down deep roots, including a special gathering of ‘rose trees’ at Orton Bradley Park.

Landscape

Volcanoes are a spectacular feature of the North Island —they are often close to where people live and travel, and many are quite young: Mt Taranaki / Egmont is just 135,000 years old. Some are still active, and erosion has had little effect on their height and bulk. The South Island landscape in contrast is perhaps best known for the dramatic Southern Alps; the volcanoes elsewhere are much older and worn down by weather and flowing water. Banks Peninsula is made up of two eroded shield volcanoes (Lyttelton and Akaroa) overlapping one another, formed between 11 and 8 million years ago. Their distinctive low rounded shape which resembles a warrior’s shield is formed by the accumulation of broad sheets of liquid lava. Unusually these two volcanoes punched up through the Pacific continental plate above a ‘hot spot’, one after the other; most volcanoes develop at plate boundaries. The two overlapping volcanoes were once an island reaching nearly 1500m / 5000ft above sea level, but collapse of the upper part of each ‘shield’ and erosion has reduced its height by a third. Braided rivers flowing east from the Southern Alps joined the island to the mainland with shingle outwash plains thousands of years ago, and rising sea levels after the last ice age flooded the craters to form harbours. Underlying rocks are mostly volcanic, with soils around Lyttelton Harbour categorised as silt loams. They have developed from loess, a fine silty material lifted from the Canterbury plains and riverbeds by strong northwest winds over

Massive eucalypts on the entrance road to the park

R. 'Black Magic'

Drifts of snow drops Galanthus *sp.* flower along the pathways at the end of July

thousands of years, and deposited across the peninsula in thick layers: as much as 10 – 20m / 32 – 65ft deep on lower north-western slopes. The material is quite fertile because in geological terms the soil particles are freshly weathered; it tends to become compacted and often needs breaking up with organic matter for better drainage when under cultivation.

Climate and environmental conditions vary across the peninsula due to the variety of landscapes and proximity to the sea: generally conditions are warmer and damper towards the east, with greater temperature variation and less regular rainfall distribution in the west. Even within Lyttelton Harbour there are significant rainfall differences from one side to the other. Southern bays such as Charteris have a higher rainfall (around 950mm / 37in annual average) than the northern side with 650 mm / 25 inches annual average. Within the bay Orton Bradley Park is sheltered from the prevailing easterly wind which blows up the harbour, but can experience strong winds from the south and northwest, which swirl around the bluffs and ridges and can damage trees with sudden squalls and downdrafts.

Before people arrived in New Zealand around 1250 AD, the peninsula appears to have been almost completely covered in forest, particularly tall and dense in sheltered valleys but thinning out to scrub and tussock on the tops and on exposed north-western slopes facing the plains. The north-facing summits on the southern side of Lyttelton Harbour above the park were tussock country, with larger trees confined to moist sheltered gullies. The forest was a mix of podocarps and broadleaf trees, changing its composition at higher altitude like other natural plant communities. *Podocarpus* is an ancient genus of conifers surviving in New Zealand and other areas once associated with Gondwanaland, the southern global supercontinent. Banks Peninsula forests were dominated by totara (*Podocarpus totara*) and included rimu, kahikatea and Southern beech (family Nothofagaceae revised in 2013; New Zealand genus now including *Fuscospora* sp. and *Lophozonia* sp.) plus a rich variety of smaller trees, shrubs, grasses, herbs and alpines. It is thought that a natural global cooling of the climate which began in the 1400s was reducing the area of forest here even before humans arrived, “as seedlings of some species already at their southern limit found it increasingly difficult to establish in the colder drier conditions” (Gregory-Hunt). Timber harvesting, grazing and fires caused by human activity together accelerated a slow process probably already happening to the forests on the peninsula.

First people

Groups of Polynesian people discovered New Zealand / Aotearoa sometime around 1250 AD. This was the last group of large islands to be settled by humans, who in this case navigated the Pacific Ocean on large ocean-going sailing canoes. A complex network of tribes and affiliations developed over the following centuries, with the area now commonly called Banks Peninsula originally known as Te Pataka o Rakaihautu (the great store house of the chief Rakaihautu).

According to Māori oral tradition Chief Rakaihautu brought his tribe to Te Wai Pounamu, 'the waters of greenstone', whose west coast was the source of the prized greenstone jade. Banks Peninsula was a great store house for foods of all kinds: abundant bird life including several species of moa; seals, fresh and saltwater fish, shellfish, roots and fruit. There was timber (totara was prized for making canoes), and materials such as feathers, skins and native flax (*Phormium* sp.) and other fibres used for cloaks, nets, mats and baskets. Rakaihautu and his tribe Waitaha were said to be the first people to "light the fires of occupation." Several tribal groups have been associated with the peninsula through conquest and intermarriage: Waitaha first, followed by Kāti Mamoe and then Ngai Tahu which has become the dominant tribe throughout most of the South Island. There are also a number of sub-tribes associated with different areas of the peninsula.

Lyttelton Harbour, called Whakaraupō in reference to the former abundance of raupō bulrushes / reeds on the mud flats, was once home to hundreds of Māori, with at least three permanent settlements called pa, some with earth terraces and timber palisades for defence. There is a Kāti Mamoe pa site on the slopes of Mt. Herbert, whose summit is the highest point on Banks Peninsula at 919m / 3015ft at the head of the

Four wheeled dray

valley above Orton Bradley Park, and indications of earth ovens and storage pits in the park from long before European settlement. The first Europeans to see the peninsula were British explorer Captain James Cook and his ship *Endeavour* in 1770. Life around the harbour was relatively peaceful, but violence between peninsula tribes broke out in 1810, made worse by muskets traded from northern hemisphere commercial sealers and whalers visiting in the early 1820s. Measles and other diseases to which Māori had no resistance reduced the population, and devastating raids along the east coast and peninsula during the early 1830s by North Island chief Te Rauparaha caused further bloodshed and loss of life, to the point of just a few dozen Māori being registered in the area during the 1849 census.

Northern hemisphere arrivals

The first European families (mainly British) who settled in the harbour leased land from local Māori in 1843 for sheep and dairying—supplying fresh meat, cheese, fruit and vegetables to whaling stations in the harbour, and nearby Lyttelton port. About 1846 a stone shelter for local shepherds was built in Charteris Bay, one of the oldest stone buildings in Canterbury and now carefully restored. The first group of settlers soon found that their leasing arrangements had been overtaken by events. The New Zealand Company had been set up in England in 1839 as a one-stop-shop to promote and commercially manage British settlement to New Zealand, and in 1848 it purchased a huge area of the South Island from Māori, including Banks Peninsula. This effectively cancelled the original leases, and the early farming families had to either to purchase the land or take out new leases from the Company. However the Company's main purpose was to settle large numbers of new families from Great Britain at a profit to shareholders, and despite trying to protect their property rights and acquire freehold land where they had been farming, the early pioneers found their holdings disappearing as demand for land escalated. French

Eucalypts, oaks and conifers line the main entrance road to the park

Stables with double latticework

commercial interests had also tried to start a French colony on the peninsula in the late 1830s, but this was also overtaken by the Treaty of Waitangi, signed in 1840 by most Māori tribes and the British Crown.

Land for sale

An offshoot from the New Zealand Company was the Canterbury Association, another commercial enterprise set up in 1848 and lasting until 1853, which aimed to establish a Church of England colony in New Zealand. The idea was to re-create an idealised English society— gentry, tradespeople and workers—and in 1850 the Association was able to sell land to its settlers, the main group of whom arrived later that year. Land was offered in 20ha / 50ac blocks, which in England on reasonably fertile rolling country could be an economic unit, but around Banks Peninsula the landscape was a much rougher prospect: wetlands, rocky outcrops and cliffs, sometimes with no permanent source of fresh water, and the settlers often needed more fertile land quickly if they were to survive. There was a rush from the early 1850s to acquire more land by those who could afford it. If they could not buy adjoining blocks, they could lease the next block for seven years, renewable after that period while retaining the option to buy; or buy two blocks on either side of a third, making the block between less valuable and forcing its sale: a debatable practice called grid-ironing which became a common tactic to effectively push farmers off smaller holdings. Charteris Bay (named for the early surveyor of this part of the harbour) was valuable because of its wide flats running back from the shoreline and the permanent Te Wharau stream, spring-fed from high up in the bluffs at the head of the valley.

Charteris Bay settlers

The first land in Charteris Bay bought from the Association by settlers was in 1850, but the first settlers to live permanently at the bay were Dr Thomas Moore and his family from Salisbury in England, who bought his 50ac block and by 1852 had built a low-slung timber house. Wintering in a tent as many pioneer families did would quickly encourage the building of proper shelter! Dr Moore practiced medicine in Lyttelton and farmed at the bay, starting a herd with pedigree Shorthorn and Alderney cows brought out from England. Breeding stock was also sold for improving local herds. This and other local farms became well-known for fine quality beef, cheese and butter, establishing the reputation of Banks Peninsula as an important dairy farming area for several decades. The property soon grew to around 80ha / 200acfreehold, including the shepherds' stone shelter which was converted to a dairy; plus another 200ha / 500ac of leasehold pasture. The farm was productive but uneconomic and by 1858 Dr Moore was obliged to sell the land and stock, after which he established a successful medical practice in Christchurch city.

Later that year part of Dr Moore's land which included his timber cottage and the stone dairy was sold again, to friends and business partners the Rev Reginald Bradley and Rev Preston. Both were originally from Kirkby Stephen, in the northern English county of Westmorland (now part of Cumbria) and Rev Bradley had arrived in Christchurch in 1856 to serve as vicar in the new still mostly rural parish of Papanui. St Pauls offered only a small allowance, so Bradley started a smallholding to provide his family with fresh food and to extend his income. He so much enjoyed farming that it became his priority, and after permission from his bishop and purchase of the land in Charteris Bay, he sold the Papanui vicarage and moved over the Port Hills with his family into Dr Moore's cottage in 1859.

Bradleys in the bay

Rev Bradley had a business-like approach from the start, "initiating thirty years of intense land acquisition" (Gregory-Hunt). This included the tactic of grid-ironing, something one might expect from an empire-building Victorian landowner but perhaps not from a man of the cloth! However he went about it, by the time of his death in 1892 he owned 647ha / 1600ac, almost identical to the area of the modern park. This stretched from the shores of the bay right up the valley to the slopes of Mt. Herbert on one side and Mt. Bradley opposite – at 855m

Historic dairy, originally a sheperds shed built in 1846

/ 2800ft Mt. Bradley is the second highest point on Banks Peninsula. Bradley had bought his friend Rev Preston's share by 1870, plus more land over the hills in Christchurch. Bradley was a competent farmer – pragmatic, organised and open to new ideas. There was a wealth of new technology developing in the late 1800s, and increasingly good communication with Britain. Bradley was keenly interested in stock improvement, and his herd of shorthorns was considered one of the best on the peninsula. Butter and cheese were his main products at first, but cash crops of fresh fruit and vegetables from orchards and market gardens on the farm helped to increase his income which was further augmented after 1878, by meat from his own slaughterhouse for the Lyttelton market. Some of the remaining native timber in the upper valley was cut for farm use, and there were still large areas of native flax growing wild, which was in demand for use as rope on the hundreds of sailing ships which docked at Lyttelton. Rigging was often replaced in New Zealand before the ships returned to Britain, so the flax industry remained large-scale and profitable before steamships started to take over in the 1880s.

Bradley leased land to one of his workmen Adam Chalmers, who developed a water-powered flax mill in 1870 to process raw flax sledged down from the upper slopes of the valley, which would then be sent up to Auckland to be spun into rope. The mill closed after 20 years although Bradley continued to sell raw flax locally for a time. There's a single reminder of the flax mill at the park – in a field is a large stone with a square hole, which once supported a shaft connected to the mill machinery. Bradley's eldest son Orton was around 13 years old when the mill began operations, and judging by his later passion for water-powered technology the boy took great interest in the intricate system of wheels, blades and hydraulics, all operated by a constant supply of water diverted from and then returned to the stream.

The year before he began milling flax, Adam Chalmers had been hired as stonemason at the estate when a quarry had been opened up to extract

Mr Orton Bradley in the 1930s

the beautiful pinkish sandstone found in the area – a rock comprising marine quartz sand and green stone. Bradley later sold this locally and in Christchurch where it was used in churches, monuments, fireplace surrounds and feature walls for over a century. The farm was his main focus and full of valuable resources for this practical and enterprising man. Like many educated men of the time he took a full part in public life including long service on local councils, plus his remaining church responsibilities to two nearby parishes. He enjoyed horse racing, and went on regular trips of exploration all around the South Island. He died in 1892 just a year after his wife Frances, and their oldest son Orton inherited the estate. Orton seems to have been genuinely interested in everything except managing an efficient farming enterprise, an outlook which ironically saved much which could have been lost. His father intensively managed the farm for its resources, and contemporary methods put considerable pressure on the natural landscape. Interestingly, information provided at the park describes a different approach in Akaroa: *'… a cosmopolitan community made up of Ngai Tahu, French peasant*

R. 'Lovelock' near the trunk old a coastal redwood *Sequoia sempervirens*

farmers and ex-whalers cultivated green crops, cereals and fruit on small holdings, using traditional methods. The forested slopes were left largely intact' [for a while at least].

Orton Bradley and his home garden

Reginald Orton Bradley was the oldest son in the family of nine children, and the only one not born profoundly deaf. Emma and Reginald Robert died as children; Louis married and moved away to farm; Kate married and stayed in the area; Alicia, Ada, Ethel, Frank and Orton never married and spent their lives on the estate, with Frank taking the main role of running the farm. During his early twenties Orton developed a sophisticated garden around the main homestead. Still the original house built by Dr Moore in 1852, it had been altered by the Bradleys to accommodate their growing family and visiting relatives. Orton had no formal training in horticulture but read widely and followed his instincts—perhaps he was channelling his ancestor 18th century English landscape designer Lancelot 'Capability' Brown.

He planted the first macrocarpa trees on the peninsula as a hedge around the house in 1880— *Cupressus macrocarpa* grows naturally only on Monterey Peninsula in California but thrives in southern New Zealand including Canterbury; cuttings were soon taken from Orton's hedge for other local plantings. There were lilies, a large fernery, plus exotic trees, shrubs and flowers rare in New Zealand and endangered in other parts of the world. He installed a complex irrigation system, gravity-fed from the stream via pipes and channels to holding ponds, then released under pressure through perforated pipes around the garden. Orton would have been familiar with rhododendrons – there were a surprising number available in New Zealand by the 1880s: for example nine species including *R. campanulatum, R. ciliatum,* and *R. dalhousiae* appeared in the nursery catalogue of Dunedin horticulturist William Martin.

The botanist and naturalist Thomas Potts brought his family to Canterbury in 1854, consulting with Kew Gardens prior to leaving England about plantings suitable for Christchurch. Potts sent ahead seeds and live plants, including azaleas and rhododendrons. They were the first of their kind in the province, and the beginning of his nursery in Christchurch which supplied seedlings to public and private gardens. Potts was an exact contemporary of Orton's father, and seems to have shared many of Orton's interests including conservation of the natural environment—he was vocal in his attempts to save totara forests near Christchurch, and to preserve native bush generally. His splendid house Ohinetahi in Governors Bay was (and is) right opposite Charteris Bay. Beginning in 1865, Potts laid out his

garden with the help of six gardeners and by the late 1870s it was in its prime, lavishly planted with mature natives and many exotics including rhododendrons. This was the time when Orton was developing his own garden, and as local gentry the Potts and Bradley families would surely have visited each other and their gardens.

In the mid-1860s Sir John Cracroft Wilson began importing rhododendron seeds from India, including *R. arboreum* and what we would now likely identify as *R. a.* ssp. *zeylanicum*. One of these plants was later used for hybridising by Christchurch plantsman and rhododendron breeder Edgar Stead, who developed his world-famous garden at Ilam after 1917. As a fellow naturalist (Stead was a passionate ornithologist, and treated injured native birds at Ilam) and knowledgeable plantsman, Bradley would very likely have met Stead in the 1920s and 1930s and visited his garden; perhaps some of Stead's hybrid seedlings were planted at the bay. The Bradleys' garden became famous in Canterbury and was much visited. Described by H. C. Jacobson in around 1893:

A neat macrocarpa fence bounds the flower garden, which is rich in many flowers. The roses look particularly nice, and amongst the native shrubs and trees are specially to be noticed some grand specimens of the mountain palm, the giant cabbage tree, which here flourishes most luxuriantly. Winding down the path to the left, past the garden, we come to the stockyard, which is very massively fenced and paved with stones. The stables are most spacious and excellent, as might be supposed, from their being under the management of Mr. Orton Bradley, the present owner of the estate.

Farm buildings

The stockyard in front of the stables is almost unchanged. Built in 1878 with additions in 1885, the stables with double gables and latticework are still "most spacious and excellent"—massive horse chestnut trees planted by Orton in the 1880s frame the elegant facade. This was one of the busiest places on the farm, housing both racing and working horses; horses were used as late as the 1940s to help with weed control. After 143 years of hard use and gravity the stables have *"a well-worn accumulated-over-time quality; the same eroded non-angular lines that distinguish landscapes from cityscapes. You could never create this look. Time has made it."* (Jasper Conran again). If Orton had had a brisk Victorian reforming zeal, rather than pursuing the life of a gentleman Edwardian naturalist, most of the early structures would likely have been swept away. As it was, the estate seems to have slowed to a gentler pace for 50 years after Orton took it over; H. C. Jacobson noted when he described the garden that the stone dairy and stalls were "fast falling into decay." By 1890 the dairy industry on the peninsula was in decline due to a worldwide agricultural depression and this may have contributed to Orton's lack of interest. Much of the estate was now leased for cash crops such as fruit, tomatoes and potatoes alongside the existing sheep and cattle.

Polyspora yunnanensis flowers in late July, slightly frost tender, is from Yunan in China and related to camellias.

The older buildings were treated with a kind of benign neglect, along with much of the original machinery. Orton embraced the future and had a passion for science and new technology; there just seems to have been no desire to demolish the

New foliage of the large-leafed species R. 'Ross Childy'

past to get there. A new mill was up and running by 1890. Powered from a storage pond, water-race and waterwheel, a lathe, drill press, bench saw, plane and grindstone (plus an English engineer) were gathered by Orton during trips to Great Britain:. A blacksmith shop and forge was added, and around 1900 one of the first electrical generators on the peninsula was installed. This supplied power to a grand new kauri and macrocarpa homestead built in 1901 on the site of the original cottage (typically this was dismantled and reassembled nearer the stockyard).

Trees

Trees were the other main legacy from Orton. He was keen to preserve what remained of the original native forest in moist gullies, rocky bluffs and stream margins in the estate's upper valley; exotic and native trees were planted around the homestead, farm buildings and along lower streams; and timber woodlots and nut species were established around the property. Different species were planted to see which would thrive in the local conditions, and Orton became an expert on their timber potential from establishment through to milling. He also donated trees to parks and reserves all over the peninsula. There were at one time over 150 tree species on the estate and the collection is still formidable, and growing again: oaks, maples, conifer species including Coast Redwood *Sequoia sempervirens*; and rarities like the Turkish Hazelnut (*Corylus colurna*) can all be found on the arboretum walk. There is one of the largest macrocarpas in New Zealand with a trunk diameter of over 4m/ 13ft, and the eucalypts along the entrance driveway are also nationally significant. Orton's interests included botany, horticulture, woodturning, cabinetry, geology, silviculture, ecology, brewing, horse breeding, training and racing, and palaeontology – *"towards the end of the year 1923 Mr Orton Bradley, of Charteris Bay, brought to my notice a find of fossils close to the road leading to the wharf…"*(R. Speight 1926, Philosophical Institute of Canterbury). Orton was also a member of the Institute. He was clearly a serious intellect, who had a genuine curiosity for the natural world and the scientific basis for his interests.

After his death in 1943, the estate was managed by trustees (two cousins retained a financial interest until their deaths) during the remaining years of World War Two and on until 1976, when Orton's last resident family member died. The early trustees and managers had a literally uphill battle in the valley to reinstate fences, manage sheep and cattle, and control weeds and pests such as gorse, reeds, possums and rabbits on once valuable pasture. Orton's neglect of farm management activities preserved rare native freshwater fish, unusual insect and plant species (such as the scented green-flowered *Clematis marata*) as well as the historic farm buildings, but at the cost of the economic viability of the estate. A series of farm managers, temporary workers and staff including long-term housekeepers and gardeners steadily built the property back up, while dealing with two major disasters: in 1967 the magnificent timber homestead burnt down, taking with it most of the Bradley family archives including the early photographic records of the estate; and in April 1968 the 'Wahine' storm battered the mature trees, requiring a massive cleanup. To their great credit, after years of development the trustees handed over a well-organised and profitable farm to the new Orton Bradley Park Board in 1977, which officially opened the estate to the public in 1981. The park has continued to develop since then, balancing modern farming methods with recreational, environmental and cultural activities. For example, seasonal grazing is carefully managed to help maintain natural plant communities. Timber woodlots have been planted and managed since the 1950s and around 40,000 people visit and use the park every year. Both Bradleys, father and son (and Dr Moore) would be well-pleased to see their home ground in such good heart, integrated as a multi-faceted public asset. Orton considered his trees the most important part of the bequest, and in his plans for a public park he could imagine an arboretum "with a comprehensive catalogue of both native and exotic trees and shrubs for recreational purposes" (Gregory Hunt). In hindsight a rhododendron collection was a great idea just waiting to happen.

Rhododendrons along the water race

In 1983 local plantsmen Ron Coker and Hamish Deans first discussed a plan to establish a rhododendron collection within the

park. Rhododendrons and associated plantings would potentially enrich the public's experience, and the Canterbury Rhododendron Society (CRS) could develop a local site as a centre for ongoing plantings The Park Board approved the idea, but with limitations: initial plantings should not be identified with name tags, and flower colours should only be white or cream. Significant rhododendron plantings began at the park in 1985, particularly species from Subsection Maddenia which would appreciate the mild winter temperatures and whose generally higher heat tolerance would be an advantage in summer: they included *R. johnstoneanum, dalhousiae,* and *ciliicalyx* seedlings. One of these seedlings developed into a fine plant, and was registered in 1998 as *R.* 'Orton Bradley'. In time, plant labelling was introduced (a two-year intensive saga, as records of earlier plantings had not been kept) and flower colours other than white and cream were established: compromise between the Park Board and CRS over the development of the garden has been ongoing since the earliest plantings. The CRS was launched around 1970 by around a dozen local enthusiasts, independent of the New Zealand Rhododendron Association (NZRA) but sharing many of the same goals,

R. 'Mi Amor' sweetly scented and slightly frost tender

and including many of the Canterbury NZRA members. The rhododendron collection at Orton Bradley Park is like the family garden of the CRS—a private planting (self-funded) within the farm park. The collection spreads alongside the water race, which is fed from Te Wharau stream and supplies the storage pond above Orton Bradley's mill near the historic farm buildings. Pathways curve back and forth through the plantings, crossing over a timber bridge at one point and winding up around fissured trunks of mature oaks, pines and *Sequoia* on the lower hillside slopes.

R. 'Black Magic' flowers in early November and is one of the best dark red hybrids.

Weather wise

Facing the sun and close to the harbour, this is one of the mildest environments around Lyttelton harbour, which suits slightly frost tender plants generally and particularly Subsection Maddenia, Arborea and Fortunea rhododendrons (and their hybrids) many of which have significant natural tolerance of heat and drought. Scented *R. lindleyi* x *nuttallii* hybrids 'Mi Amor', 'Stead's Best' and associated hybrids do well, along with *R. maddenii* ssp. *maddenii* 'Polyandrum Group' and their hybrids such as 'Moon Orchid' and 'Bernice' which are also sweetly scented. Summer temperatures can melt the tar on peninsula roads, however certain groups of rhododendrons can tolerate these conditions if they receive supplementary watering and sufficient shade. In a recent Rhododendron Species Foundation article I noted that *"Canterbury is a challenging environment generally for cool-temperate rhododendrons and their hybrids—arguably borderline, with a mainly winter-maximum rainfall and hot dry summers. This is the opposite of Yunnan and other southern Chinese and northern Indian regions where*

Dovecote

plants are adapted to a cool dry winter. Wild rhododendron species from lower altitudes [in northern India] *and warmer, drier habitats may well suit Canterbury conditions better… there are certain species which appear regularly throughout the breeding lines of hybrids which do well here".*

Banks Peninsula receives more rainfall overall than the Canterbury Plains, but as we have seen Lyttelton Harbour still has relatively uneven seasonal temperatures and rainfall compared to, say, Dunedin. As it flows among the rhododendrons the water race at the park effectively raises the humidity on hot northwesterly days, when temperature and humidity move in counterpoint. Temperatures 32°C and 20% humidity can quickly burn leaf tips and new foliage, and dry out the root zone. If the soil is damp, leaves can transpire more freely to keep cool; conversely moist air eases the immediate stress on plants even if the soil is dry. During the early development of the garden water was carried in buckets from the stream to the rhododendrons by Periodic Detention workers, a laborious process which could not always keep plants alive. An automatic irrigation system was installed in the early 1990s, aiming to replicate the Himalayan summer monsoon rainfall with gentle low-pressure overhead watering from tall sprinklers during cooler evenings.

Occasional heavy snow in winter has caused damage directly to plants, and by snapping off heavy tree branches above them. Strong winds can break branches too, and during major storms whole trees can come down under the weight of snow, or wind-throw from violent squalls and downdrafts. Clearing massive trunks off paths and plantings is a hard job requiring chainsaws; however these unplanned clearances can have a positive effect by allowing more light and air to reach the plants. Shadows from the tall conifers move across the area through the day for a balance of sun and shade, rather than maintaining a constant dappled-shade environment.

First steps and development

In 1985 Periodic Detention workers cleared away scrub and weeds prior to planting, and it was found that slightly acid humus had accumulated under conifers on parts of the site, while other areas had light silty soils—'fluffy loess'. Compacted spots needed thorough conditioning and mulching with plenty of pea straw. Around 220 plants were set out initially, many of them grown as unnamed seedlings by CRS members from first cross hybrids, and the resulting selection from this time still offers a wide variety of characteristics. There have been additions every year since then, with the CRS donating hundreds of plants in total and much appreciated

contributions from the NZRA. Special plants from private collections have been carefully transported from near and far. In the late 1990s species were a special focus, with plants donated by members and some nurseries offering seldom propagated and unusual plants to the CRS as a favoured buyer. The Dunedin Rhododendron Group specialist annual plant list is a treasure, including rarely available rhododendrons and associated alpines, perennials and other shrubs from Otago nurseries: for example *R. mallotum*, *R. mucronulatum*, 'Danella' and 'Flamingo' from the list were planted in 2018.

Plants associated with individuals maintain a living connection to the people and gardens they came from. There are many specimens established, plus seats and bridges installed, in memory of friends of the garden and CRS members as part of the gradual development of the site, which makes this rhododendron collection very much a personal extension of the Canterbury and wider New Zealand community. It also acts as a trial garden for local conditions, and a seed source, and allows comparisons of growth and habit between plants growing here and at Heritage Park at Kimbolton, and Dunedin's Tannock Glen and Botanic Garden Rhododendron Dell. A long flowering season is an important objective, with flowers from mid-winter: for example the butter-yellow NZ hybrids 'Lovelock' and 'Waireka', and 'Little Glendoe' (*R. forrestii* x *R. arboreum* ssp. *delavayi*). Camellias are a significant part of the garden's evergreen structure, and their winter flowering attracts bellbirds moving down into the milder lower valley: birdsong echoes & shimmers among the trees during sunny afternoons. Rhododendron flowering continues through the main season in October and November to *R. maddenii* 'Te Harinui' in the first week of December: this was a seedling in the first plantings which took over 20 years to flower and show its potential. 'Polar Bear' and its parent *R. diaprepes* are later still.

R. callimorphum for Yunan and N.E. Myanmar

R. 'Waireka' ('Lovelock' x *R. ciliatum*)

R. piercei from S.E. Tibet, introduced in 1933 by Kingdomward

Maintenance and planting philosophy

Management of the "collection over the hill" by the CRS team has been described as an exercise in remote gardening: visits may be monthly, or several times a month at busy times. There are gardening days four or five times a year when the CRS regular gardening group and volunteers move through the collection weeding, trimming and planting. They are sometimes assisted by Periodic Detention workers from the Justice Department, who dispose of piles of garden rubbish and help with heavy lifting. Pathways and edges are sprayed with non-residual weed killer as required, but otherwise maintenance is along organic principles as much as possible. Pea straw is still used extensively, although not the thousands of bales which were spread around annually when the collection was getting established. In 2018 for example, 121 clean bales and their transport were gifted by the Ellesmere Lions Club. Some straw is used as a conditioner, but most of the 40 – 50 bales now applied each year go on as mulch. Once this layer is applied and begins breaking down, no further disturbance of the soil surface is needed; tillage and hoeing not only risks root damage but encourages weed germination from the soil seed bank. Another result of this minimal tillage and regular mulching is that the community of soil creatures and microflora becomes more diverse. Pests, predators and diseases are more in balance and the ecosystem is more resilient; some recent work is being carried out investigating the effectiveness of remedies on certain pests.

The rhododendron plantings are given depth by layers of choice perennials, bulbs, shrubs and rare small trees. *Eucryphia moorei* is a favourite for its prolific flowering, with several of this genus represented; also *Illicium simonsii*, *I. magus* and other named forms, and pink flowered *Magnolia delavayi* from Kunming Botanical Institute. One of my favourites *Polyspora* (syn. *Gordonia*) *yunnanensis* revels in the mild conditions and flowers for most of the year, and *Daphne bholua* seedlings have their usual range of form and flowering time. An unusual small tree *Heptacodium miconoides* (syn. *H. jasminoides*) introduced from China in 1980 is apparently cold hardy, and quick growing with attractive flaky bark and scented white flowers in late summer; and *Poliothyrsus sinensis* first introduced by E. H. Wilson in 1908 and also from China, has glossy dark green leaves and yellowish-white summer flowers. This second species is the sole

R. 'Moon Orchid' raised by the Jurys in Taranaki and is significantly heat and drought tolerant.

R. hyperythrum

R. 'Bernice', another Jury hybrid.

member of its genus, and develops an elegant tracery of fine branches which our native fantails particularly like to nest in. The rare *Euscaphis japonica* Korean Sweetheart Tree from East Asia is a recent introduction; and the evergreen *Edgeworthia gardneri* Nepalese Paper Tree is well-established and flowering. There are drifts of *Primula* and *Galanthus, Loropetalum chinense, Dichroa*, *Buddleja*, native ground and tree ferns, NZ Southern Rata *Meterosideros umbellata,* a fine selection of hostas (easily divided to extend areas of groundcover), trilliums and great scented spires of *Cardiocrinum giganteum* lilies from late November. These lilies are steadily increasing by seed and are a feature in late spring. A group of the spectacular native Nikau Palm *Rhopalostylis sapida* is being established, using seed from the few remaining Akaroa Harbour specimens to maintain local genetic lines.

In this kind of garden the highlights may not always be near the path, but remain concealed until the visitor moves to another viewpoint. The overall effect is casual, as if the plants had seeded themselves into natural associations of pleasing forms and texture. This is a style which is very tricky to do well—an art form attempting to be artless. If the control is too firm the effect is forced; too weak a grip and it looks overgrown. Try for the cusp between exuberance and disorder and the results can be magical—the trick is to keep editing the plantings throughout the season. Regular gentle trimming is a vital process to let in light and air, and ensure that the density of individual plants is attended to. Starting from the inside of the canopy and working outwards, this is also a good way to free up and display the branching structure of rhododendrons with attractive bark. Some of the earliest rhododendron plantings now need significant structural pruning for growth renewal: to some extent this is an experimental process, needing strong nerves! Overhanging conifer branches too need to be removed occasionally to maintain vistas across the garden—an important activity for

Cardiocirinum giganteum (The Himalayan Lily also known in Canterbury as the 'Mount Peel Lily'

the long term success of the plantings.

American friends and local guardians

There is enough space to assemble the plants in groups: *Loderi* cultivars and *R. degronianum* ssp. *yakushimanum* hybrids, wild species, New Zealand hybrids (an important feature of the collection, which includes most of the hybrids bred in Canterbury to date) and international hybrids, with attention to plants from the Pacific Northwest. This North American planting is being extended as a result of donations by private individuals, including CRS members, in the Seattle area. The coastal Pacific Northwest has until recently enjoyed the rhododendron equivalent of the 'Goldilocks Zone': usually not too hot and not too cold, with cool moist conditions. However climate change in 2021 has abruptly changed these assumptions, with high summer temperatures breaking all previous records. Seattle and New Zealand maintain strong personal and professional links in both directions across the Pacific, and the CRS has several fine plantspeople from this region as members and friends. Some quality North American hybrids at Orton Bradley Park are 'Puget Sound' (enjoys conditions which suit Loderi hybrids), 'Brittenhill', 'Black Magic', 'Mt Loma Prieta' and 'Ruth Motley'. The collection is documented on a database and site plan, which also records as much of the provenance of the plants and plantings as possible.

Geoff and Kathryn Millar were among the founder members of the CRS, and part of the team who began the collection at Orton Bradley Park. They have an exceptional ongoing commitment to all aspects of the work: maintenance, guardianship, promotion, education and new planting. Kathryn is the collection's honorary curator, and if a new plant is being considered it must meet with her approval—she has a keen and discerning eye allied to a formidable depth of knowledge. Geoff led the installation of the overhead irrigation system, does much of the spraying, and has the strong nerves needed to choose which overhanging conifer branches to remove. Kathryn has her favourites, including *R. piercei*, transplanted from a private collection in the late 1990s. Vigorous and easy to grow at the bay, it has sparkling red flowers and dark nectar pouches, attractive leaves with a glossy rugulose upper surface, and warm brown indumentum. Caring for the garden is a group effort: Kathryn, Geoff and the team of 'regulars' who attend working bees are a close-knit and committed group with lifetimes of accumulated horticultural skills, friendships and experience. I consider it a great privilege, and a pleasure, to be able to work with some of these people in their own gardens.

The rhododendrons and Orton Bradley Park generally are worth visiting at any time, not only in peak flowering season—there are always treasures to discover. There's something wonderfully improbable about the whole process of developing the garden, and establishing the rarities within it. Like early human settlers on the peninsula, the ancestors of these plants arrived by sea from half way around the world to settle themselves in and around a pair of extinct volcanoes: exotics flowering among fantails, tui, bellbirds and wood pigeons—literally transplants to an undiscovered country.

Notes

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http://en.wikipedia.org/wiki/Banks_Peninsula

R. 'Surrey Heath' next to the main access track to the farm.

RHODODENDRONS AND CAMELLIAS AT THE WHANGAREI QUARRY GARDENS

Kate Ballard

General view of camellia garden

The Whangarei Quarry Gardens began as the dream of Laughton King in 1990 - a dream which became a possibility in 1997 when the Whangarei District Council turned the disused quarry site over to the newly formed Whangarei Quarry Gardens Trust. In 1974 the 25ha property had been gifted to the Council by Winstone Aggregates Ltd and had remained fallow for 20 years. An unlikely site on which to create the stunning garden, it did have some natural advantages: plenty of water delivered over high rock walls in spectacular waterfalls, the sheltered east-west alignment of the almost frost free valley and Northland's high temperatures and rainfall. Drawbacks included every weed known to the North, rubbish and detritus associated with a working and then abandoned quarry and poor access across the steep valley.

Now 25 years later this stunning tropical oasis is a powerful example of what a community of volunteers (35 at present) is able to achieve. Funded by membership subscriptions, gold coin entrance fee, donations, sponsorship, plant sales, an annual grant from the Whangarei District Council and the biennial Garden Discoveries and Sculpture Northland Exhibitions it now has a reliable income, enough to employ two staff and a ring fenced annual plant buying budget. In 2019, 15 each of magnolias, camellias and rhododendrons were planted.

Major engineering works have seen the stream dammed to form a large lake in the deep hole left by the quarry workings, and vehicular and foot bridges. A visitors' centre with a café has also been built.

Steep sided and narrow at the entrance the valley widens as you progress further west. This provides a multitude of micro climates enabling a broad range of plants to be successfully grown. The northern, south facing slopes in the narrow part of the valley are most suited to the rhododendron and camellia collections and they have thrived here. Whangarei was home to two remarkable hybridisers and their creations are well represented in the collections. Os Blumhardt of course inspired so many people to dabble in plant breeding and his local friend Jim Finlay certainly put this encouragement to good use by creating so many fragrant camellias. Both men were super generous to the Gardens in the early days, donating plants and advice.

Camellias:

Jim Finlay donated his collection of fragrant camellias to the gardens, the first gifting of about 90 shrubs

Camellia 'High Fragrance' bred by Jim Finlay credit Tony Barns

in 2001, with another 10 shrubs two years later. Fifty one of these were named and 49 were numbered seedlings. The Gardens staff weren't ready to plant them at the time that they were uplifted from Jim's, so they were homed temporarily elsewhere where they were somewhat neglected. When the time came to plant them at the Gardens many labels were lost and it is just recently that a serious effort has been made to identify and label them correctly. This is now the largest collection of Jim Finlay's fragrant camellias in the world and the management is working towards establishing the Gardens as a Camellia Garden of Excellence, a title awarded by the International Camellia Society. There are now 63 registered Finlay varieties and 13 of Os Blumhardt's with a total of about 200 camellias. Current plant buying is concentrating on NZ bred varieties. Os's varieties include his two "black" camellias, C. "Night Rider" and C. "Black Opal." The high-tech methods used to obtain these crosses in collaboration with Bill Ackerman in a laboratory in California is another story which is told in detail in Os's biography.

More camellia plants were donated from garden centres, garden clubs and individuals. Jack Tucker, another local hybridiser, donated six plants

which are situated far from the main collection on the far side of the lake. Lorraine Young, who is currently in charge of the collection on a volunteer basis, has been resurrecting these plants, which are reticulate hybrids, and registering them.

Over the last two years the camellias have undergone a major rejuvenation. They had grown unchecked since planting and now the volunteer group has moved systematically through the garden pruning and fertilising. The plants had grown together, forming an undifferentiated mass with smaller growers shaded out. Each plant has been reinstated as an individual and pruned to give an open appearance. The aim is to have only three trunks per plant. This year the rewards are there to see with better flowering and a more attractive, diversified garden as the lighter conditions underneath have allowed low growing, shade tolerant plantings to thrive. This extends the flowering season and overall interest.

Rhododendrons

The bulk of the rhododendrons in the Gardens are vireyas. Unlike the camellias they are scattered throughout the garden in sites providing good drainage and some shading especially from late afternoon sun. In the early days Os Blumhardt donated plants and gave advice. When David Muir, the first manager asked his advice on varieties for the Cascade Dell Os donated several 'Big Softee', his own breeding, and 'Pink Jazz', a Mark Jury cross. 'Big Softee' quickly turned up its toes, which will surprise no one who has attempted this temperamental beauty, but 'Pink Jazz' has grown into large shrubs, almost constantly in flower.

R. 'Red Mountain' *credit Kate Ballard*

The Westgate family donated 10 plants and many more have been added over the years. An old 'Red Mountain' plant reaches for the light in a truly forest situation – you could imagine you were in Borneo seeing a natural forest setting except for the fact that this is an Os hybrid.

Initially there was just a handful of conventional rhodos planted in behind the camellias. These were R. 'Pink Perfection', 'Belle Heller', 'Ruby', 'Everglow', 'Rubicon', 'Sierra Sunset', 'Saffron Queen'. These have been added to and there are now approximately 25 different varieties. These will be of great interest to local gardeners because conventional rhodos are not particularly successful in Northland. However some varieties do brilliantly so being able to observe successes at the Gardens will be a great help in choosing what to try in private gardens. Os, at the time of his death, was deeply into hybridising rhodos with particular emphasis on hardiness north of the Bombay Hills. All his hard work came to an abrupt end with the hundreds of seedlings being grown on never going through a selection process or being brought to market.

The Future

Now a NZ Gardens Trust 4 star Garden of Significance the management is aiming to become a 5 star Garden of National Significance. This progress is reliant on the Gardens becoming a Camellia Garden of Excellence, the requirements which are close to being achieved.

One of the reasons I have used the words "approximately, probably, around about" etc, when talking about the numbers of plants is because there is no reliable record of the plants in the Gardens and labelling is haphazard. There have been attempts in the past to set up a database but it was not really suitable for a garden of this scale and now all records are on paper. In 2012 an English woman, Mrs. Lucie Nottingham, visited the Gardens and decided to make a generous donation of 2000 pounds from the Tanner Trust. This was used to purchase aluminium Metal Image labels. This went some way towards getting the Finlay camellias labelled and there is now ongoing progress to extend labelling – both display labels and permanent plant labelling using Metal Image products.

Obviously a good data base,

R. 'Pink Jazz' credit David Muir

Friends and volunteers assemble

preferably up to the standard of a Botanic Garden, would be ideal and something which management has on their wish list. There is a huge range of genera in the Gardens which should be recorded and available to other organisations and the public.

Visiting the gardens on a Monday or Wednesday you will find it alive with people tucked away on steep slopes weeding, cutting back, tidying, chatting, enjoying their companionship, their shared love of plants and the amazing environment they have helped to create.

Acknowledgements:

- Guy Hessell, Gardens Manager.
- Lorraine Young, Volunteer in charge of camellias and rhodos.
- David Muir, First Manager.

R. Rhododendron rarilepidotum credit Kate Ballard

THE RHODODENDRONS OF HOLLARD GARDENS

Lara Coxhead and Shannon Boden

Hollard Gardens was started in 1927 when young Bernie Hollard fenced off a section of native bush on his farm and began to nurture a garden. In the 1950s he put sharemilkers on the farm and, with his wife Rose, turned to gardening full time. His favourite plant was the rhododendron and so they are the dominant genus throughout the gardens. Hollard Gardens now has over 300 types of rhododendron - a broad range of hybrids and some species.

Early days

Bernie was self-taught - he was an avid reader of gardening books and also subscribed to the Royal Horticultural Society in London. Each year he would carefully study and order from their comprehensive seed list. Bernie learned to propagate plants by himself and provided stock to nurseries and fellow garden enthusiasts, particularly those in Taranaki. He had an insatiable interest and collected a wide variety of plants that flourished in his extensive gardens. However, he was particularly interested in rhododendrons, partly because they grow extremely well in Taranaki's soil and climate. He went on to become well known for breeding them.

Bernie's earliest horticulture pursuits were influenced by local gardeners such as Charles Score Sanders, who established Ngaere Gardens, and Percy Thomson in Stratford, who imported plants. Later he was closely associated with a local group of plant enthusiasts including Cardiff farmer Harold Marchant, Tikorangi farmers Felix and Les Jury, Stratford lawyer Jimmy Edmonston, Ben Rayner from Manaia and Tom Penn from Stratford. Other garden associates were George Huthnance (rhododendron enthusiast), Fred Parker (orchid enthusiast and nurseryman), Peggy Vallender (perennial enthusiast) and Victor Davies (Duncan and Davies Nursery). Together they formed part of a close-knit group of Taranaki plantspeople. In the 1950s, members of the group imported plants from overseas nurseries, including Hilliers in England. The plants would arrive in the middle of NZ summer, bare-rooted and washed. Before planting out, they would be kept apart for a time in a form of quarantine. They swapped plants freely within the group and with other enthusiasts throughout the country such as Douglas Cook (Eastwoodhill, Gisborne).

'Bernie couldn't help you enough if you were really interested in plants. He went by the plantsman's creed - it's about passing on the baton. If you are prepared to ask, they will say, "I did the same thing to someone else and he or she helped me. Help yourself."

"He was very encouraging, to put it mildly, as long as you were genuine, and he would take you around the garden. He had incredible stamina and was an amazing ambassador for plants." (Mark Jury)

Rhododendron 'Kaponga'

Hollard Gardens dressed for spring

Rhododendron 'Kaponga'

Bernie believed that the best plants were the ones worth waiting for. The rhododendron he bred and is best known for - *Rhododendron* 'Kaponga' - took 12 years before it finally flowered. It's the offspring of a cross he made in the early 1950s between *R. arboreum* 'Kermesinum' and *R.* 'Ivery's Scarlet'. These two parent plants had been brought out from England, where they were bred from ancestors collected by explorers in the Himalayas.

The resulting *Rhododendron* 'Kaponga', bred by Bernie, is a glowing shrub in full bloom with large trusses of cherry red flowers contrasted against rich green foliage. It is easily obtained from rhododendron nurseries and will grow and flower best in partial shade. It is very tough and good for a range of sites except for those that are very windy. It is a neat, bright and cheerful accent of red in any spring border. The original *Rhododendron* 'Kaponga' was planted in the North Garden and is still thriving there today.

Rhododendron 'Rosanna Red'

As you wander around Hollard Gardens you'll find other rare hybrids, some of which may be growing nowhere else. One of these, *Rhododendron* 'Rosanna Red', was bred by Les Taylor, originally from Ngaere and later from New Plymouth. He was one of the younger member of the group of plant importing enthusiasts. His interest in rhododendrons had been nurtured by Bernie Hollard and later extended by Professor Yates at Massey University who had advised him to approach Royal Botanic Gardens Edinburgh for seed. His letter mentioned the 4 or 5 species of seed that he was interested in and enclosed a £2 postal order. In 1952, 151 packets of rhododendron species seed arrived in the mail. 'They

came up like mustard and cress' and included species not in New Zealand at the time, and ranged from small alpine rhododendrons to large trees.

A year later, a letter from Edinburgh arrived with a refund of seven shillings and sixpence, and an apology that no more seeds would be available. By that time, Les Taylor had acquired considerable 'bargaining power' and had earned his place in the plant exchange. He bred *Rhododendron* 'Rosanna Red' and named it after his wife. It's still growing at Hollard Gardens, near the main entrance.

Hollard Gardens now

Hollard Gardens is the achievement of a lifetime of work by Bernie and Rose Hollard. It holds a diverse collection that represents many of the plants introduced to Taranaki from 1927 on, including many selected and grown by Bernie. In 2002, Hollard Gardens was transferred to the ownership of Taranaki Regional Council who care for it on behalf of the Taranaki community. Today Hollard Gardens is a healthy and dynamic garden where many of these plants are still part of a thriving display. It's a plantsman's garden and a monument to patience, passion and horticultural skill.

Rhododendron 'Rosanna Red'

R. arboreum ssp *delavayi*

R. 'Dawn Chorus'

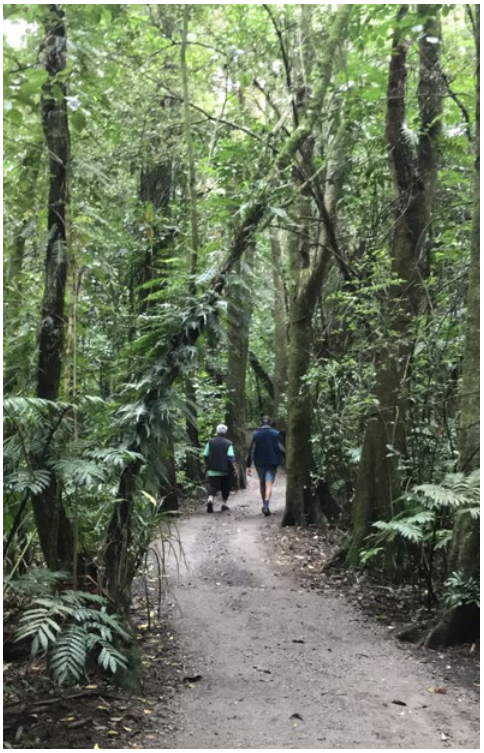
R. 'Dawn Chorus'

PUKEKURA PARK - A VISIT ON THE SHORTEST DAY *Lynn Bublitz*

Ponga ferns, *Cyathea medularis*, Main Lake

Roots of Morton Bay Fig, *Ficus macrophylla*

Giant Redwood *Sequoiadendron giganteum*



A walk through Maranui Gully featuring Pukatea Trees, *Laurelia novae-zelandiae*

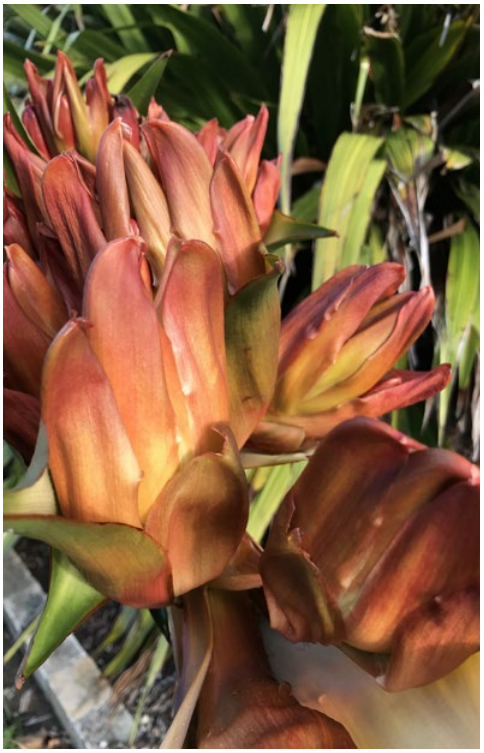
R. 'Simbu Sunset'

R. tuba

Cycad cone, Brooklands Park

Cameilla 'Cornish Snow'

Camellia 'Aspasia McArthur'



FRANK KINGDON WARD
RHODODENDRONS AT PUKEITI

Graham Smith

R. Charisma KW20280

Frank Kingdon Ward (FKW) was the longest operating plant collector in the field in the 20th Century, spanning from 1911 to 1956. After the death of his father, H. Marshall Ward, Professor of Botany at Cambridge University, FKW had to find a job and became a school teacher in Shanghai for ex-pat children and that enabled him to explore the regions natural history. This led to a chance to visit western China as part of an American expedition and so began his lifes work. His first collection expedition was in 1911 to Tibet and then the area from NE India, through Burma (Myanmar) and western China became his ground. Various sponsors included nurserymen, botanic gardens, wealthy landowners, scientific institutions and horticultural societies from all parts of the world, New Zealand included.

The NZRA began contributing to FKW expeditions in the 1950's and many of the members were Pukeiti founders and so began the spread of rhododendron seed-grown species being introduced and accompanied by the KW numbers that applied to every expedition. Most of the numbers we grow have started with KW19000 and anything lower than that would have been imported privately as seed grown plants, probably from the UK.

Pukeiti would have started planting the KW seedlings from about the mid 1950's and by 1960 there would have been more than 100 scattered through the collection. The early impetus was on grouping alike plants together, so large leafs were concentrated in the Large-Leaf area away from the more manicured Lodge/Hybrid areas and the Maddenias along the Ayckbourne Walk and other warmer sites. These choices have proven wise as many still exist. However 60 years on does take a toll and inevitably some have

R. arboreum spp. albotomentosum

R. elliottii KW19083

moved on to less than greener pastures despite attempts to re-propagate.

The list produced is alphabetical as easier to follow than switching between often closely spaced numbers.

R. *arboreum* ssp. *albotomentosum* KW21976 – Also called 'Mt Victoria' form, from the Chin Hills, western Myanmar. A superb small Arboreum, slow growing with small dark glossy leaves, white below, new growth covered with white indumentum. Very craggy bark from a young age, compact dense deep red flower trusses in mid-winter at Pukeiti. With more than 12 seedlings planted they show variation in habit and invite both a clonal selection being named and hybridising for a selection of early flowering tough plants.

R. ciliicalyx 'Charisma' KW20280 – A superb form of the variable species from N. Myanmar. A compact spreading shrub with scaly leaves and soft pink, wide spreading trumpet flowers, sweetly scented, in late October. Named by Pukeiti and registered. We also have a cream form under the same number originally from Ron Gordon's garden, Taihape. We consider this species is probably *R. pachypodum*, a wide spread species in SW Asia. FKW never used the name as a species but a 'Series' ie a group of 'like species'.

R. elliottii KW19083 – A rare species from W. Myanmar with a dense habit when young with curved leaves that have a fine tan indumentum which rubs off quickly. Brilliant scarlet flowers in dense trusses in Nov-Dec at Pukeiti creates a great display. Introduced in 1952 NZRA listing.

R. elliottii KW20303 - Same as above but collected a year later. This is a taller shrub with a more open habit but with larger flower trusses. I backcrossed the best of both forms and a bank of these seedlings were planted just above the Burns Walk to be viewed from the Bridge. They are now a superb sight in late Nov-Dec, usually with the first of the *Cardiocrinum* Giant lilies flowering around them.

R. formosum var. inaequale KW20301 – Compact, narrow leaved form of this scented Maddenia. A small

R. elliottii & Cardiocrinums

R. formosum var. *inaequale*

shrub with neat white open trumpets with a light scent. Made available by NZRA in 1953 under KW 20302.

R. genestierianum KW20682 – An extraordinary rhododendron whose buds resemble a small bunch of purple grapes! An open plant with narrow light green leaves, almost white below. The buds open to small waxy light purple flowers which most people would give a miss but they are unique and also scented. Usually flowers over a long period but never showy. NZRA list in 1956.

R. johnstoneanum KW20305 – A very variable species this one with wide open funnel shaped flowers in a soft light yellow on a compact shrub, mid-October. Slight scent. NZRA 1953 plant availability list.

R. luteiflorum 'Glen Coy' KW21556 – Introduced in 1953 from The Triangle, N. Myanmar this rare species is compact, slow growing with small dark green leaves, almost white below. Small trusses of bright yellow on slender pedicels in early spring. Imported from the UK in 1970's from Brodick, Isle of Arran, Scotland.

R. protistum 'Pukeiti' KW21498 - The famous original Giant pink rhododendron under the Giant Rata, both now gone. However the rhodo. is still around in grafted plants and layers in other parts and will always be the show-stoppers in late winter with the sheer number

R. genestierianum

R. johnstoneanum

and size of flowers. Collected in N. Myanmar in 1953 under *R. giganteum*, now considered a juvenile form of the first named species.

R. sidereum KW20838 - Another big leaf but in this case very much smaller in scale with long narrow leaves and creamy-white compact trusses in November, the last of this group. Found on the Gordon Walk. Collected in 1953 and on 1957 NZRA plant list.

R. simsii KW22036 – A remarkable bank of these evergreen azaleas line the upper Matthews Walk where more than 50 seedlings were planted in the late 1950's and have grown and been cut hard back a number of times. Brilliant orange-red flowers become a wall of colour in Oct-Nov

R. protistim 'Pukeiti'

and the narrow leaves are distinctive. Collected in 1953 in N. Myanmar.

There have been many more FKW species over the 70 years and some will exist in other collections having been released from Pukeiti. We are always looking out for these if still growing elsewhere in New Zealand.

Graham Smith.

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R. sidereum

R. simsii

VARIABILITY OF THE ADAPTABLE

Subsection Triflora

Doug Thompson

Triflora rhododendrons in the Rhododendron Dell, Dunedin Botanic Garden

In the late 1980s, the rhododendron collection at Dunedin Botanic Garden was reorganised to bring related species and hybrids into themed groups according to subsection and parentage. The aim was to allow visitors to see both the similarities and the differences between species within the different groups. In this way, not only was the collection's educational value strengthened, but the combined impact of similar rhododendrons conferred a more satisfying landscape presence in the 4ha woodland garden. Specific areas were created for representations of subsections Arborea, Maddenia and Triflora plus one for subsection Arborea hybrids and two scented theme borders. Progress continued into the early 90s with areas for subsection Campanulata, Campylocarpa and Pontica rhododendrons.

One subsection in particular that benefitted from this arrangement was subsection Triflora, mostly plants of larger stature, but with relatively small leaves and flowers. Where one or two specimens can catch the eye, a swathe of them growing together capture attention through the variety of size colour and form they deliver en masse. They range in colour from white to yellow and from pink to deep purple blue. Even within one species, *R. augustinii* subsp. *chasmanthum* for example, different colour forms can vary from near white through pink to lavender-blue. Although *R. keiskei* is the only true dwarf species in the subsection, in the wild, many of the other 23 species and subspecies have adapted to widely varied habitats, ranging from alpine open rocky slopes to forested areas. This has resulted in different forms varying from less than a metre to several metres in height.

Running through the centre of the Rhododendron Dell is the grassed path known as the Cherry Walk. There are border areas that follow the length of the Cherry Walk and it was a fairly narrow one about 4m wide on the west side that became home for the subsection Triflora collection between 1989 and 2000. The soil here was relatively heavy and unmodified, but as they often come from drier areas in the wild, they can adapt to poor, dry or heavy soils better than many other species. In 2000 the border was renovated for an expansion of the New Zealand Rhododendron cultivar collection which had been established on the east side of the Cherry Walk in 1998. The subsection Triflora collection was relocated to a more open site in the lower Rhododendron Dell overlooking the north end of Dunedin. Although plants belonging to the subsection Triflora are more resilient to dryness, and so to wind and exposure, the shift to the new site was not as successful as hoped and gradually they began to struggle in the face of brighter sunshine and the keener bite of the prevailing southerlies. Eventually the Triflora collection plants were removed from the new site and now remain as a number of specimens scattered around the upper Rhododendron Dell. However,

it is useful to revisit the original planting scheme as an example of how satisfying, vibrant and instructive a botanically arranged collection can be.

The Triflora collection was originally planted along a 40m stretch of the border backed by well- established Rhododendron hybrids such as *R.* 'Mrs Henry Shilson' and *R.* 'Joseph Whitworth' along with several specimens of *R.* arboreum and a mixture of native and exotic trees. Along the front, of course, were the different *Prunus* cultivars forming the Cherry Walk itself. These provided a framework of bolder form and foliage for the more airy Triflora collection plants to stand out against.

The subsection takes its name from *Rhododendron triflorum* first discovered and described by plant hunter Joseph Hooker on an expedition to Sikkim in 1849. Although its flower trusses can have two to four flowers, most have three, prompting "triflorum" as an obvious choice for the specific epithet. The flowers are what is known as 'zygomorphic' meaning they can be folded symmetrically along one axis only, in the case of *R. triflorum,* vertically. The flowers appear either from the terminal or uppermost axillary buds and have minute calyces between 0.5 and 1.00mm wide. Future discoveries of species with these characteristics earned them a place in the new subsection Triflora although most had more than just three flowers per truss and in fact can have as many as seven.

Starting at the north end of the border were the blues of *R. augustinii* subsp. *augustinii* and *R. augustinii* subsp. *chasmanthum*. The different forms of *R. augustinii* most commonly cultivated can vary from pale, to lavender blue to deep mauve. However, this gives a false impression of the natural colour range because, as different colour forms were found in the wild and returned to cultivation, it is the blues which found favour with propagators and gardeners of the time. Instead, in their native habitats, pale to rosy-purple or pink are the most common. The specimens in the Dell have ranged from quite light to deeper blue. The deeper blue specimen had reddish filaments, (the delicate stems supporting the male anthers) giving a purplish hue to the flowers, whereas lighter coloured filaments allow for displays of truer blue. *R. augustinii* subsp. *chasmanthum* has flowers with more reflexed petals but can also come in lavender-blue, pink or near white. Along with these we had *R. augustinii* Medlicott form, *R. a.* Tower Court form, the former with a distinctive green blotch and the latter with a white centre marked by small flares of yellowish green spots. One of the most striking blues gleamed from *R. augustinii* 'Electra' a selected clone that can smother itself in deep blue-purple flowers early to mid-season. Yet another strong blue growing here was the hybrid *R.* 'Saint Tudy' a cross between *R. augustinii* and *R. impeditum* raised in the UK by Magor and Harrison in 1961. From N Yunnan and Sichuan, *R. impeditum* is an alpine dwarf species less than a metre high in subsection Lapponica and comes with violet to deep purple flowers and leaves just over 1.5cm long. The resulting hybrid is about 1m high with violet purple flowers with small ovate-lanceolate leaves and ideal for the front of the garden border. Standing out from all these though, was the very light lilac, to almost white, *R. a.* Wisley form, whose upper petal was accentuated by a flare of yellowish green markings

Next in line along the border were three specimens of *R. davidsonianum,* a pink species from Central and SW Sichuan. One was the deeper pink Ruth Lyons form. Coming from such diverse habitats as on cliffs, on stream banks, in conifer forests or in the open it can grow from between 0.9 to 5m tall. Growing at the base of a mature *Plagianthus* in the Dell, the resulting root competition limited their height to around 3m. These can be confused with *R. yunnanense* and along with four other species – *R. rigidum*, *R. siderophyllum, R. tatsienense* and *R. pleistanthum* – are considered to belong to a further sub-group within the subsection, the Yunnanense Alliance. Where both *R. davidsonianum* and *R. yunnanense* can have pink flowers, the leaf on *R. davidsonianum* is often V shaped in cross-section and the lower surface is densely scaled, whereas *R. yunnanense* has a flatter leaf and widely scattered scales up to 6 times their own diameter apart. From that same grouping, there was a specimen of *R. rigidum* further down the border. Coloured white with reddish brown spots and coming from a similar range of habitats it can vary from 0.6 to 3m high. In the Dell it reached 1.5m and was a pleasing contrast to the purplish flowers of *R. oreotrephes* next to it.

Most species of subsection Triflora usually have lanceolate to oblong leaves. Those of *R. oreotrephes* can

R. augustinii 'Medlicott's Form'

R. augustinii showing the red filaments

R. augustinii 'Wisley Form'

R. davidsonianum 'Ruth Lyons'

R. davidsonianum

be oblong-elliptic but can also be almost orbicular, so in a collection of its cousins seems something of an interloper. The upper leaf is pale to mid green in colour and often glaucous, another key identifier, whilst for those with hand lenses the scales on the underside are purplish, reddish-brown or grey, opaque and with only a narrow rim – also key features for the species. The flowers can be whitish pink through to rose or, like those in the Dell, bright purple, whilst in the wild there are also reports of yellowish or apricot forms.

Other dark coloured species in the subsection complementing *R. oreotrephes* were *R. concinnum* Pseudoyanthinum Group, with ovate-lancolate leaves and deep to reddish purple flowers, plus *R. polylepis* and *R. tricanthum* both with pale purple flowers. The latter was an intriguing addition with bristly midribs on the undersides of the leaves and distinctly bristly petioles, pedicels and corolla tubes. The Red List* (* International Union for Conservation of Nature (IUCN) Red List of Threatened Species) of rhododendrons now rates *R. tricanthum* as 'Vulnerable' in the wild where it survives in only four small populations in W Sichuan. Due to habitat loss and damage, two of the remaining populations have sadly been reduced to less than 10 specimens.

Near the south end of the border the opposite end of the colour spectrum was represented *by R. lutescens*, *R. triflorum, R. triflorum* Mahogani Group and *R. triflorum* var. *bauhiniiflorum*

R. lutescens comes from a wide altitudinal range between 550 – 3000m in W Sichuan, Guizhou and Yunnan with corresponding variability in height from 0.9 – 6m. The leaves have distinctly pointed or acuminate tips and are tinged reddish bronze. The leaf colouring complements the pale to primrose-yellow flowers. *R. triflorum* has a distribution spanning E Nepal, Sikkim, Bhutan, SE Xizang and Arunachal Pradesh. The specimen in the Dell had light cream flowers, but they can also come in pale green, bright yellow or with a reddish wash. The stems of the eastern Himalayan forms have smooth peeling, fawn pink or reddish-brown stems, whilst those of *R. triflorum* Mahogani

R. searsiae

Group from SE Xizang are not. The flowers though are suffused apricot, mahogany-red pink or orange. *R. triflorum* var. *bauhiniiflorum* from Nagaland and Manipur in India has showier larger greenish to clear yellow flowers with saucer shaped corollas.

R pleistanthum

Bringing pink back into the selection, *R. searsiae* stood out, with longer narrow pointed leaves which were worth turning over to examine the glaucous under-surface speckled by brown and yellowish scales of different sizes. In the wild it has only been found on one mountain in W Sichuan between 2,300 – 3000m and hasn't been seen for 40 years so has been classed in the Red List as Data Deficient and now may even be extinct.

Still growing in the collection, in the now expanded peat garden, is *R. siderophyllum,* with pinkish white flowers in quite dense trusses of up to six florets. With several buds gathered near the end of the stems they result almost in a pompom effect above the pointed light green leaves. Growing in the shade of one of the cherries it tends to get drawn up a little but responds well to corrective pruning. The peat garden with its free draining mix of peat, soil compost and sand is the ideal situation for the dwarf member of the subsection, *R. keiskei* which grows on hills and rocks in Japan, sometimes even epiphytically. It has pale lemon-yellow flowers and new foliage that often emerges reddish in colour. Also, still in the Dell at the opposite end of the Cherry Walk, with lilac-purple flowers and dark green foliage is *R. zaleucum.* The flowers of this taxa can also range from white through pink to purple. It has aromatic leaves whose glaucous undersides are so reflective as to appear nearly white. Coming from elevations between 1800 and 4000m in Myanmar and Yunnan and habitats as diverse as rocky slopes, scrub, thickets or damp coniferous or rhododendron forest in the wild, they can be as low as 0.6m or as much as 10.6m in height. *R. zaleucum* is another threatened species classed as Vulnerable in the wild where it is under threat from logging and deforestation.

By the early 2000s the need to find space in the Rhododendron Dell for new species and hybrids put pressure on the subsectionally themed areas and over time some have been diluted or removed.

Still in place are the subsection Maddenia and Arborea species, *R. yakushimanum* and its hybrids, subsection Arborea hybrids and subsection Pontica hybrids. Given that subsection Triflora can offer such diversity of colour and form this is one themed group that I would consider restoring to the Rhododendron Dell. In addition to those mentioned above, several others are threatened in the wild. *R. zaleucum* var. *pubifolium* and *R. keiskei* var. *hypoglaucum* are all Critically Endangered whilst *R. zaleucum* var. *flaviflorum* is classed as Vulnerable and *R. tatsienense* var. *nudatum* and *R. triflorum* subsp. *multiflorum* are deemed Data Deficient. So, if any of these can be sourced a new subsection Triflora area would also form a strong conservational resource for the future whilst also laying out an intriguing array of different forms as an educational and landscape asset.

R. rigidum

MUCH MORE THAN GOODENOUGHII - THE VALUE OF PUKEITI'S VIREYA COLLECTION

Andrew Brooker

Arfak Mountains, West Papua

Wikipedia

Picking up from our previous discussion about the role of collections such as Pukeiti's in the world-wide *ex-situ* conservation effort, let's take a look at *Rhododendron arfakianum* and *Rhododendron goodenoughii*.

Both of these species are listed as Data Deficient in the 2011 Red List of Rhododendrons, which indicates an absence or dearth of current information about their wild population numbers. This shows how important it is for botanical collections everywhere to maintain their holdings, and where possible share material to ensure species can survive in an *ex- situ* context.

R. arfakianum (fig.1) certainly faces potential threats in its natural habitat range, though small but positive steps have been taken over the past four years or so to better protect these ecologically important environments.

The species is named for the locality in which it was first found, the Arfak Mountains (Pegunungan Arfak) in W Papua. But it was also noted by Argent as being in the Netoti Range. It grows primarily as an epiphyte, or occasionally terrestrially, on forest margins at an altitude of 1200m to 2135m. (fig.2).

This area of West Papua is a popular hiking destination, rich in birdlife and butterflies. Adding to the pressure is a wealth of mineral deposits and other highly sought-after resources. But according to a 2018 report on news.mongabay.com, the governors of Indonesia's Papua and W Papua have pledged to conserve some 70 percent of the land within their jurisdictions, reportedly some of the best forest remaining in the country. They said by focusing on eco-tourism they would not only see a boost to the local economy but protect the environment. This would be better for the long-term future of their people than just selling the land for mining rights – a very long-sighted view. The announcement followed W Papua declaring itself the world's first 'Conservation Province' in an Act passed in 2015.

The intentions are grand but there are big challenges. Outstanding permits and licences in 2017 included 171 mining permits, 114 oil palm plantation licences and 53 timber and industrial forestry permits. Many of these overlapped existing conservation areas and/or each other, leaving nothing for the local flora and fauna or local indigenous people. By 2018, only 36 percent of the land was delineated as protected.

In fact, as a result of these concessions and others, some 1700 square kilometres of forest had been cleared since 2008.

But there's still optimism that eco-tourism can be a viable option, with "many foreigners" reported to be "coming to Pegunungan Arfak to enjoy the natural beauty".

The determination of the locals is supported by the work of the Indonesian Botanic Gardens Network, in turn supported by the Botanic Gardens Consortium International (BGCI). Populations of rare and endangered plants are being protected in a number of locations as part of a concerted effort to preserve what is a valuable part of the region's natural ecology.

Collections like that held at Pukeiti also have a part to play. Records show that *R. arfakianum* was imported as a young plant in 1984 via the Australian Rhododendron Society. In 1991, it was planted out in what was then still a very new growing area for the vireya collection. It was subsequently lost, but not forgotten. The plan is to acquire a new accession as and when it is possible to do so.

Rhododendron arfakianum G. Smith 2006

R. goodenoughii (fig.3) is another species which is Data Deficient in the literature – again, not much is known about its present wild population status. Named after an island and mountain in Papua New Guinea where it was discovered, this rhododendron has rounded green leaves and amazingly scented flowers. It was introduced into cultivation in 1964.

The described habitat was an exposed ridge and sub-alpine grasslands, c 2000m-2400m, in a climate that is distinctly tropical. On the map (fig.4), the mountain is denoted by its local name of Oiautukekea. It is the only known habitat for this species.

This sits inside the Oya Madawa Wildlife Management Area, encompassing the centre of the island in an area of 22,840ha. It's a critical landscape for a large number of endemic, endangered and rare species – mainly mammals, insects and birds, but also our cherished rhododendron.

Does *R. goodenoughii* face the same pressures as those of *R. arfakianum*? How much (or little) do we know about the island and its environments? Certainly the island's alluvial gold was important to the wealth of Australia, which governed it up until 1975 when Papua New Guinea achieved independence. Its population was 27,195 in the 2011 census, spread around the lowland rural areas and growing only slowly. So land-clearing may not be a significant pressure on the habitat. The local economy is based on growing vegetables rather than farming animals, with land handed down through the male line.

And within *ex- situ* collections, the plants of *R. goodenoughii* are proving to be both vigorous and dependable. The Pukeiti collection has two very handsome plants on display – both very healthy – and a number of young propagules in the nursery as back-up. This suggests that on-the-ground information about this species may not be as urgently critical as it is for others.

But it would be unwise to take too much for granted in today's changing world. I am sure that as work progresses to update the Red List and further our knowledge of the status of the genus, plans will be being made to fund field trips into these areas and others.

Meanwhile, although we have lost one of the species discussed today, Pukeiti's role in all of this has not changed. With the young propagules of the species we hold in our collection, we are well placed to disseminate them further through The *Ex-situ* Conservation Project, ensuring their future.

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Rhododendron goodenoughii A. Brooker 2021

EDEN GARDENS EXPANDING THE *EX-SITU* RHODODENDRON CONSERVATION PROJECT

Lynn Bublitz

R. 'Salmon Pancake' bud

Dunedin Botanical Garden was the first to join Pukeiti in this project, agreeing to propagate and grow species and their different clones. Other gardens, both public and private, will be invited to join too, thus providing a range of different climates to match the species' various requirements. Some will grow better in Dunedin, others in Auckland and some at Pukeiti for example. Record keeping is critical so that the knowledge of where each species is growing is retained. If it is lost in one site it can be repropagated from another and conserved .

The next garden chosen as part of the *ex-situ* project was confirmed with the signing of an MOU (Memorandum of Understanding) with Eden Gardens. The garden will provide a habitat suitable for some species, mainly vireyas, to be successfully grown. The MOU allows the plants distributed there to be inspected annually, more species to be added to the

Andrew instructs the gardeners on the MOU species

collection as they become available, and if the plant should die out at Pukeiti or else where, it will be re-propagated from Eden Garden scions.

Spreading the *ex-situ* species collection across New Zealand is like an insurance policy.

Andrew Brooker and I arrived at Eden Gardens on a relatively warm July morning . It had been raining and the paths had been swept, the wet surface reflecting the light of the sun, which made this outstanding garden most welcoming. The paths hugging the steep slopes of the former quarry site wound down through the memorial plantings. Camellias, along with early magnolias and michelias provided a shady canopy. The restful quiet of this garden was interrupted by twelve tui trying to out-sing one another as they fought for nectar in the Taiwanese cherry. But the vireya rhododendrons were the highlight and many sported blooms. Some were covered in flowers, others had just a few individual eye-catching trusses, spectacular as vireyas can be, their main flowering season still to come.

Plants supplied to Eden Garden

R. rarum T3/2015 -0168B
R. dielsianum T3/2016-0249A
R. rarilepidotum T3/ 2008-0124B
R. konori x T3/ 2016-0208A
R. fallacinum T3/2016-0257A
R. tuba T3/ 2014-0144A
R. pleianthum T3/2016-0191A
R. blackii T3/2015-0203B
R. rugosum var *rugosum* T3/2016-0258B
R. yongii T3/2015-035B
R. solitarium T3/2016-0222A
R. archboldianum T3/2013-0092A
*R. phaeochitum*T3/2015-0176A
R. dianthosmum T3/2012-0129B
R konori var *phaeopeplum* T3/ 2017-0388C
R. konori T3/2017-0115B

Morning tea at Eden Gardens

R. 'Beverly McConnell'

One of the attractions of these plants is that they flower intermittently throughout the year; many have their main flush in winter brightening the season's dull days. But this was a sunny July day which made the garden even more colourful and the visit a delight.

On arrival, Andrew backed into the garden the TRC ute and trailer, which when uncovered revealed the nineteen different species to be grown on and displayed in the gardens . Among the species there was one hybrid , a special plant, *R.* 'Beverly McConnell', included as Andrew rightly thought that this beautiful vireya should be displayed in an Auckland garden. Beverly is a former Trust Board member and the owner of Ayrlies, one of New Zealand's great gardens.

Other gardens, both private and public, will be approached to sign an MOU. Individuals will be able to join the project too. Coded clones of species will be offered through the Members Plant List, and the records of the purchaser retained. These plants will then become part of the distributed collection. The present *ex-situ* research project has found that several species are represented by only a single example, the death of which may mean that an endangered species is lost from the rhododendron world. By purchasing these plants, successfully growing them and helping to ensure their survival, individuals, too, can play a part of this world leading conservation project.

A selection from the extensive vireya collection at Eden Gardens

R. 'Watermelon Dream'

R. 'White Knight'

R. 'Red Socks'

R. 'Popcorn'

R. 'Lipstick'

IT TAKES TWO TO TANGO!
DR BRIAN OLDHAM'S VIREYA HYBRIDS, HIS LEGACY

Lynn Bublitz

R. 'Rangitoto Rose' backlit

Brian, a Doctor of Medicine, and lecturer at the University of Canterbury Medical School also had a keen interest in the native flora, particularly the trees and their ecology.

In 1975 he attended a medical conference, and there a vivacious young woman, Jan, caught his attention. But she lived in Auckland, and so he travelled between Auckland and Christchurch a great number of times, establishing a long-distance courtship - which nearly ended in disaster! On one visit, to impress Jan who was at work, when up a ladder pruning a tree that was overhanging her home, he fell backwards, landing on a parked trailer. His back was broken. But not his heart. A long convalescence followed; but the travelling to Christchurch stopped when the romantic relationship was cemented, and Jan and Brian were married. They set up home on the North Shore. But Jan had another goal. She had to convince Brian to forgo his interest in the seemingly, for Jan, always boring green forest and develop an interest in plants that were far more flamboyant: rhododendrons.

A visit to Rotorua to see John Commons, a fellow graduate of Brian's and a rhododendron enthusiast, ignited a new passion. John was a Chair of the NZRA and on the Pukeiti Board. On Brian and Jan's return home, several rhododendrons were planted in their garden, particularly the brightly coloured vireyas which set a future pathway. A subsequent workshop at the NZRA Conference focused on hybridisation and this led Brian to his first attempt, in 1987, at crossing *R.* 'Robs Favourite' with 'Cameo Spice'.

It takes a number of years before the results of hybridisation can be assessed, and Jan has said that Brian's weak back meant that she had to do most of the heavy garden work. This left Brian time to continue to play with his vireyas.

It was a game played over the next 26 years.

Meanwhile Brian had established a medical practice and his interest in vireyas recharged his batteries after a long day in the surgery.

The Oldhams had time for other pursuits too. In 1989, responding to a suggestion from the RNZA, they established an informal group of rhododendron enthusiasts in Auckland. There were 15 original members which grew quickly to 60, and the

first formal meeting was held on a dark and foggy night in September 1989. It was followed by visits to 9 gardens. Over the next 20 years both Jan and Brian held various offices including those of Secretary, President and Newsletter Editor.

In 1994 the progeny of the first cross between 'Robs Favourite' and 'Cameo Spice' flowered. The best of these crosses, acclaimed by visitors and vireya enthusiasts alike, was named 'Larissa'. It had been planted out in December that year and for 6 years its vigour and habit were meticulously recorded, as has happened with all hybrids since. It withstood -4C frost, despite it at one time nipping the new growth; the flower colour faded in the hot summer sun and dryness was thought to cause the calyx to split on one occasion. It was covered in flowers at least twice during the year and produced odd flowers in between. Registered in 2004 it was commercially grown and sold by John Kenyon, Te Puna, and Bowes Nursery, Portland Oregon. It was the beginning. The second hybrid, 'Blushed Spice', also registered in 2004, resulted from a cross made between ' Haloed Gold' and *R. hersogii* in 1991, which flowered for the first time in 1994. It is tall growing and has pink flowers which fade in bright light.

Over the years 11 additional hybrids from a range of parents have been registered after a rigorous assessment of their qualities . Detailed records were kept for each for at least 10 years, enabling Brian to evaluate and be satisfied enough to register them. There were many that did not make the grade.

Jan Oldham under her *R.* 'Rangitoto Glow'

R. 'Pastel Splendour'

Vireyas wrapped protected from the frost in Oldhams garden.

Gardeners move on : Brian died in 2011. Jan has continued the hard work and nurtured the collection ever since, but declining health made her realise that others need to be involved if Brian's heritage was to be maintained. She decided that the collection should be donated to Pukeiti, and on May 11 Andrew Brooker, with the appropriate authority, drove to Auckland to load and transfer the collection. Twenty-two plants, all but five in pots, are now in his care. Some are quite large and had to be pruned to fit into the trailer used for transport. When settled into their new home scions will be taken from the originals and propagated. In the future they will grace the Pukeiti collection adding the further flamboyant colour that first attracted Brian. No doubt, in the future his plants will be offered to members for sale.

R. 'Rangitoto Sunrise'

R. 'Sunny Honey'

Registered plants include:

‘ Larissa’

‘ Blushed Spice’

‘ Rowena Knight’ (*R. tuba* x ‘ Rangitoto Rose’ 2009)

‘ Olivia Knight’ (*R. tuba* x ‘ Rangitoto Rose’)

‘ Brazen Beauty’ (‘Gardenia Odyssey’ x *R. laetum* 2009)

‘ Rangitoto Sunrise’ (‘Gardenia Odyssey’ x *R. laetum* 2010) ‘ Rangitoto Sunset’ (‘Gardenia Odyssey’ x *R. laetum* 2010)

‘ Rangitoto Dawn’ (‘Gardenia Odyssey’ x *R. laetum* 2010)

‘ Rangitoto Glow’ (‘Gardenia Odyssey’ x *R. laetum* 2010)

‘Pastel Splendour’ (‘Gardenia Odyssey’ x ‘ Rangitoto Rose’ 2009)

‘ Stellar Flare’ (*R. suaveolens* hybrid x *R. goodenoughii* 2009)

‘ Oldham’s Theresa’ (*R. suaveolens* x ‘ Rangitoto Blush’ 2010)

‘ Rangitoto Blush’ (‘Gardenia Odyssey’ x *R. laetum* 2009)

‘Lydia Ellen’ (*R. suaveolens* x)

R. ' Rangitoto Glow'

Plants packed for transport to Taranaki

R. 'Prue White'

A BIRTHDAY TREAT

Lynn Bublitz

Despite Covid restricting travel and restrictions imposed which led to the necessary cancellation of the Board meeting and the AGM, 45 members were at Pukeiti to celebrate the seventieth birthday of the Trust with a self-provided picnic and slice of cake baked and iced for the occasion. The real treat, though, was provided by the maddenia rhododendrons in a great display of bloom. They included: R. 'Charisma', *R. formosum* var. *inaequale* aswell as those illustrated on these pages.

R. johnstoneanum 'Double Diamond'

R. johnstoneanum 'Ken Burns'

R. formosum var. *formosum* 'Tentashi form'

R. 'Humboldt Sunrise' and *R. ciliatum*

R. ciliatum

R. burmanicum

R. veitchianum 'Ice White'

THE NEW ZEALAND *EX-SITU* RHODODENDRON CONSERVATION PROJECT: REPORT TO THE END OF OCTOBER 2021

Dr Marion Mackay

Greetings, readers, and here we are at the end of another year! The New Zealand *ex-situ Rhododendron* Conservation Project team has been active over the last year (except of course for another pandemic lockdown in New Zealand which cramped our style somewhat) and in this article I will outline our progress since my 2020 report (MacKay 2020). We have been busy finding, identifying, propagating, and researching rhododendrons throughout New Zealand. PhD student Ling Hu has been studying subsection Maddenia collections in New Zealand and internationally and she is making great progress. Before I start this report though, a reminder of the overall vision contained in our strategic plan (Pukeiti Rhododendron Trust 2020), where we state that the New Zealand project will develop:

A set of documented New Zealand collections, replicated where possible, that hold a wide range of *Rhododendron* species, emphasising taxonomic groups for which New Zealand has a cultivation advantage, with some (but not total) emphasis on Red List taxa, and using wild-source material where possible,

Connections to international networks and conservation

Peter Catt and Ling Hu (obscured further down the track) collect samples from Pukeiti.

programmes, where holding, propagating, distributing, cultivating, and researching plant material is part of an international activity,

New Zealand conservation expertise, with contributions to international activities to the benefit of the project.

There are three key activities that will support this vision. First is the building of the 'New Zealand Collection' starting with describing the range of taxa already held in our collections. (Interestingly, the international science literature has started to use the term 'metacollection' for a series of collections on different sites which are considered together for conservation (Griffith et al. 2020)). In the early stages of our project we focused on the 'search' activity (only one additional collection list has been received in the last year) and the MacKay dataset now holds data from about 30 collections nationwide. I also have some historical collections data (e.g., Smith 1983), plus data on sales offerings from commercial trade and from plant societies like Pukeiti Rhododendron Trust and the New Zealand Rhododendron Association (NZRA). With that knowledge on hand, we can next work on re-discovering species that are already in New Zealand but which have 'disappeared from view' (there are more than 100 such species), or on re-importing species to the extent that is allowed by our current import regulations. From this first phase I can now describe, with some confidence, all the *Rhododendron* species that are, or have been, in cultivation in New Zealand. The 'search' phase of the 'New Zealand Collection' will be followed by 'propagation and distribution', which I will outline in more detail shortly.

The second key activity is the development of a network of collections, with each site holding segments of the genus that are suited to the environment of that site, while the whole network covers all the species that we can grow here. Thus far Pukeiti has been joined by 'Tannock Glen', Dunedin Botanic Garden, 'Heritage Park', 'Omahuri Garden' and 'Eden Garden', while discussions are underway with additional sites in both the South and North Islands. Obviously, those sites already contain an existing collection; through the project, additional species or accessions will be allocated to those sites so that all the less common species that we are finding can be housed somewhere suitable. In time we will have a metacollection, which will make a useful contribution to *Rhododendron* conservation globally. New Zealand (and Australian) collections are important in plant conservation generally in addressing the current imbalance in distribution of collections between Northern and Southern Hemispheres (Mounce et al. 2017), and this is likely to be so for *Rhododendron* as well.

The third key factor is that this project is a team collaboration with representatives from Pukeiti Rhododendron Trust (PRT), Taranaki Regional Council (TRC), New Zealand Rhododendron Association (NZRA), Dunedin Botanic Garden

Ling Hu demonstrates collection of leaf tissue into a small tube, that will be used for DNA analysis.

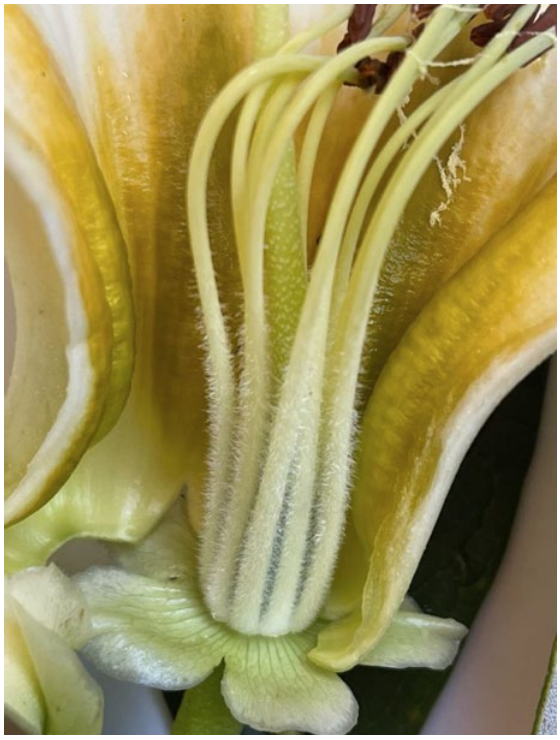
Ling Hu collects buds from subsection maddenia species, which will be 'squashed' so that the chromosomes can be counted (Image: Peter Catt).

(DBG), Massey University, and other participants as needed. The core team is Marion MacKay (Massey University), Sue Davies (NZRA), Andrew Brooker (TRC/Pukeiti), Graham Smith (Pukeiti), and Doug Thomson (Dunedin Botanic Garden), while we are joined by Lynn Bublitz (Pukeiti), Mark Joel (Tannock Glen), Greg Rine (TRC), Heather Robson (Pukeiti), Peter Catt (Pukeiti), and Jen Tate (Massey University) for certain activities. Internationally we link with Alan Elliott at the Global Conservation Consortium based at Edinburgh, Steve Hootman at the *Rhododendron* Species Botanical Garden in the USA, Botanic Gardens Conservation International in London, and other members of the Global Consortium as needed.

Having completed most of the 'search' phase we are now working on the 'propagate and distribute' phase. There are several activities here. Readers may recall that Sue Davies is leading a project to identify and propagate material from Leonie Day's garden in Dunedin which contains many unusual but unlabelled species. The team visited twice in the last year. In November 2020 Andrew, Sue, Doug, Mark Joel and I visited the site and undertook a second session on plant identification. Since that visit, approximately 56% of the 1673 plants listed in Sue's spreadsheet have been named, although some still have queries noted, and some are named only to subsection or are still unknown. In March 2021, Andrew, Sue, Doug, and Mark Joel, along with Joy and Bernie O'Keefe of NRZA, visited again and collected propagating material, installed 167 labels, and assisted with some pruning work. From this visit Sue made 225 cuttings of 45 accessions and 105 grafts from 52 accessions. Later in the year she potted 175 plants that had been successfully rooted or grafted.

Some of the conservation species that have been successfully propagated include *R. auriculatum* (Vulnerable), *R. basilicum* (Near Threatened), *R. callimorphum* (Vulnerable), *R. excellens* (Vulnerable), *R. hemsleyanum* (Critically Endangered), *R. insigne* (Vulnerable), *R. megeratum* (Near Threatened), *R. moupinense* (Near Threatened), *R. pemakoense* (Vulnerable), and *R. nuttallii* (Near Threatened). (The terms in brackets are the conservation assessments. Full details can be found in Gibbs et al. (2011).) A range of Least Concern species (those with no presently known conservation issue) were also propagated, including some good forms, such as a pink-budded *R. megacalyx* and a very good *R. yunnanense*. At the same time, some propagations have failed, more than once; two of these are *R. exasperatum* (Near Threatened) and *R. rothschildii* (Vulnerable). Different methods and different root stocks will be tried again next year.

Andrew has also been busy with propagation. In February 2021 he visited the collections at 'Gwavas' (the Hudson collection), 'Heritage Park', and 'Rongoiti' near Taihape (the collection of the late Ron Gordon) to gather propagation material. To aid in the propagation work, Pukeiti Rhododendron Trust funded the purchase of a Rouse Propagator



Details of floral parts of *R. excellens*, a Vulnerable species from China and Vietnam (Image: Peter Catt). Ling Hu uses such images to check the identity of each plant that is used in her research.

R. nuttallii PK32 on the Richardson Walk at Pukeiti.

(made by MECO Engineering) which Andrew received in September. To test its function Andrew sowed 21 pans of seed from the Jeremy Thompson and Shashil Dayal Bhutan/Sikkim seed, including *R. arboreum* white form, *R. campanulatum*, *R. grande*, *R. hodgsonii*, *R. keysii*, *R. lepidotum*, *R. lindleyi*, *R. niveum* (Vulnerable), and *R. thomsonii*. Meanwhile, Sue has germinated 24 of 28 seed lots obtained from the American Rhododendron Society (ARS) and the British Royal Horticultural Society (RHS), while Doug at Dunedin Botanic Garden is overseeing the growing-on of young plants from seed wild-collected by Jonny Larsen of Norway. The DBG accessions include *R. cyanocarpum* (Vulnerable) and *R. sulfureum* (Near Threatened) and several Least Concern species that are uncommon in New Zealand such as *R. floccigerum* and *R. selense*. Many of the aforementioned species have a conservation assessment of Least Concern, nevertheless our cultivated collections are well served by acquiring new wild-collected material; indeed, for several of those species we had no wild-source accessions listed anywhere in New Zealand.

Holding a diversity of wild-collected material is a key principle of *ex- situ* conservation, where the aim is to achieve a good representation of the genetic diversity of the species (although there is no consensus on how many plants are required). Unfortunately, most *ex-situ* collections do not hold enough wild-collected accessions of sufficient diversity (Cires et al. 2013; Maunder et al. 2001; Rae 2011) hence our goal in this project to increase the diversity of accessions in New Zealand by acquiring new seed lots of taxa that we are able to import from overseas. Thus far in the current year we have acquired the already mentioned accessions from ARS, RHS, Jonny Larsen, and the Bhutan/ Sikkim expedition. In the last few months Andrew and Sue have joined the Norwegian *Rhododendron* Society (after Sue made contact via Facebook with seed pool director Svein Erik Tønnesen), who will shortly be offering seed from hand-pollinations of choice plants, including some Cox collections. We hope to order some interesting seed lots through this membership.

Andrew has also been undertaking hand pollination at Pukeiti as the collection material comes into bloom. Thus far *R. subansiriense* (Critically Endangered), *R. cruttwellii*, *R. herzogii* and *R. blackii* have been hand pollinated. The last three are Least Concern species; however, even common Vireya species are an important priority in the project because they are held in so few collections in New Zealand and world-wide (MacKay et al. 2016).

As the plants growing in the propagation phase reach planting size, 'distribution' will become a focus. Andrew, Doug, Sue, and Graham, along with other *Rhododendron* experts from the Pukeiti Plant Committee (namely Lynn Bublitz and Alan Jellyman) will have the task of determining which sites are best suited to receive the plants for that year. Surplus plants will be offered in the plant sales lists for Pukeiti and NZRA as appropriate.

Another one of the goals in our strategic plan is publication and presentation and in this reporting period five presentations have been given to New Zealand and international audiences. I gave the first presentation, by zoom on 7 May (NZ time) to the Mt Arrowsmith Chapter of the ARS, on the New Zealand project and the work of the Global Consortium. Andrew and Sue were busy in June, with Andrew giving the in-person presentation 'Conserving the world's *Rhododendrons* - an international effort on a local scale' to the annual dinner of the Auckland Rhododendron Group on the 19th, while on the 25th Sue gave a zoom address on our project to the Rhododendron Species Foundation (USA) Annual Species Symposium held on 25-27 June. Next, on 21 July Sue gave an in-person presentation on the project, and particularly her work in Dunedin, to the Dunedin Rhododendron Group. She repeated this talk by invitation to the Manawatu Rose Society on 6 October.

While others have been busy with propagation, I have been fully

R. rothschildii (Vulnerable), seen here at Heritage Park.

R. megacalyx LD457 in a Dunedin collection. This form with a pink bud is most attractive: it has been propagated by the project team.

Young leaves of *R. exasperatum* (Near Threatened). Unfortunately this species is not cooperating in the propagation department!

occupied with research for Section 26 applications. What are these? In New Zealand importation of seed is controlled by the Plants Biosecurity Index (PBI) which is managed by the Ministry of Primary Industries and which is supposed to list all the introduced species that are present in New Zealand; except that unfortunately it does not (Carver et al. 2007; Dawson 2010; Dickson 2009). About 450 *Rhododendron* species are listed on the PBI, but another 120-150 species (including most of the vireyas) that have been in New Zealand for years are not. We cannot import any seed of the unlisted species and this is an impediment to our programme.

To have any chance to amend the PBI a series of processes must be undertaken. A critical process is that a species must be declared 'not new' (i.e., already in New Zealand) via a Section 26 application to the Environmental Protection Authority (EPA). To achieve this declaration, the evidence provided in the Section 26 application must demonstrate that the species was in cultivation in New Zealand before the import regulations changed in July 1998 and is still in cultivation in recent times. However, before we apply to the EPA we must first register the plant name on the Plant Names Database (PND), Nga Tipu O Aotearoa (https://nzflora.landcareresearch.co.nz/) managed by Landcare Research New Zealand, because when we apply to the EPA the first thing they will do is check that the species is on the PND. The purpose of the PND is to record flora present in New Zealand, however, it is particularly poor in cultivated flora. For example, before this project started there were only four *Rhododendron* species on the PND, so the first task is to correct this weakness and get rhododendrons listed on that database. (Yes, it's complicated!)

R. rugosum is a Least Concern Vireya species from Malaysia (Borneo). Plants of this species were shared with Eden Garden when they became part of the collections network.

To make progress on the Plant Names Database and Section 26 situation, two key things have happened. First, I have been building the body of evidence that is needed for these processes. With the assistance of Peter Catt, Heather Robson, Andrew Brooker and Graham Smith, we have been rummaging in archives, searching journals, reading old newsletters, searching old nursery catalogues, scanning documents, and checking herbarium specimens in the Allan Herbarium in Christchurch, to find the evidence of the presence in New Zealand of those *Rhododendron* species that are not recorded on the PND and the PBI. (Several members have contributed nursery catalogues to this process, such as Jocelyn Falconer of Invercargill, Joy O'Keefe who sent me a bag full, and several from the Robert Keiller archive.) Second, I have teamed up with Murray Dawson of the Royal New Zealand Institute of Horticulture (RNZIH) and his project 'Taking Stock: Resolving New Zealand's Cultivated Plants Problem' which has been funded by the Ministry of Primary Industries, Landcare Research and the RNZIH. The aim of Murray's project is to do what I am doing with the rhododendrons, but across all cultivated flora. (He aims to list thousands of introduced species on the PND and apply to the EPA for about 600 species.) Massey University has been subcontracted to his project (i.e., I do the work) to complete the relevant work for *Rhododendron*.

In the *Rhododendron* work I have prioritised the Vireya species that are absent from the PBI; about 80 species (about 30 species are present on the PBI, while none were on the Plant Names Database). A profile for each species has been developed which collates and cites every piece of evidence we have found thus far. This has required scanning and indexing of about 170 published documents (e.g., newsletters, journal articles) and unpublished documents (e.g., Pukeiti propagation records and inventory lists); documents that are not available online (most of them in this case) must be supplied with the evidence profile that is sent to the EPA.

As the evidence for a species is collated, the name of the species is checked to make sure it is taxonomically correct and complete and includes the correct publication details. For example, the taxonomically

complete name for *R. blackii* is '*R. blackii* Sleumer (1973)' which tells us that this species is the one described by Dr Sleumer in 1973. This information is published in the journal Blumea, volume 21 page 375. In general usage we don't include the publication details with plant names; however, for the Section 26 work these details, including details for any synonyms, must be present and correct. To find such details I use *Rhododendron* publications such as Argent (2015) and Chamberlain et al. (1996), and also online taxonomic reference works such as GBIF (the Global Biodiversity Information Facility, https://www.gbif.org/) or POWO (Plants of the World Online, http://www.plantsoftheworldonline.org/) .

Once I have all the data for a set of species, I send it to Murray Dawson who, being a more expert taxonomist than I am, checks the details of the names and authorities and then people at Landcare Research in Christchurch load the names onto the Plant Names Database (at the time of writing 145 have been loaded). Then, in February 2021 Murray and I finished a draft Section 26 application for 40 Vireya species. This document is a monster! It had 80 pages of evidence (a data page and a picture page for each species) and 180 pages of scanned source documents. This draft has been examined by a representative from the EPA and she has told us which aspects of the document need to be improved before an official submission is made. A second draft application, covering another 40 vireya species, is currently in preparation.

Sometime in 2022 work will be completed on the approximately 95 temperate taxa that are or have been in cultivation in New Zealand but are not on the PBI (most will be registered on the Plant Names Database, not all will have enough evidence for a Section 26 application). The final task will be the registering on the Plant Names Database of the approximately 450 temperate species which are already on the Plants Biosecurity Index. When all this researching and registering is finished, we will publish the 'Checklist of *Rhododendron* species in cultivation in New Zealand'; probably in two parts, one for vireya species and

This lovely pink form of *R. souliei*, a Vulnerable species from China, was recorded in a Dunedin collection.

R. auritum, a Critically Endangered species from the Tsangpo Gorge in China, at the Tannock Glen collection in Dunedin.

R. viallii is a Vulnerable species from China, Laos and Vietnam. It is not often found in cultivation in New Zealand but is seen here in the Omahuri collection.

R. dalhousiae var. *rhabdotum* at Heritage Park. This species is from Bhutan, China and India, and has a conservation assessment of Vulnerable.

another for the rest. This process, although not yet complete, has been complex and lengthy and I have found myself immersed in an enormous level of detail. However, when the process is done we will have a comprehensive description of *Rhododendron* species in cultivation in New Zealand and that will be an excellent outcome.

Another excellent piece of work is the research being undertaken by PhD student Ling Hu. Ling's PhD has been underway since January 2020, and she is studying aspects of the conservation of subsection Maddenia. Her supervisors are myself, Sue Davies, and my Massey colleague and molecular specialist Jennifer (Jen) Tate. Ling's study is supported by a stipend from the Chinese Scholarship Council, a Massey University Fees Scholarship, and a scholarship from Pukeiti Rhododendron Trust to support Objective Two of her research.

Ling's PhD has three main objectives. The first objective is to probe one of the key weaknesses of *ex- situ* conservation, the insufficient wild-collected material in cultivation (Kozlowski et al. 2012; Volis 2017a,b), and here Ling will use two key datasets to examine the range of wild-collected accessions that are present in *ex- situ* collections globally. The first dataset is from the global database at Botanic Gardens Conservation International (BGCI) in London which covers some 1150 gardens and which is a primary indicator of which species are in cultivation and where – many thanks to Abby Meyer of BGCI for providing these data. The second dataset is data from the 10-12 largest collections world-wide (MacKay, unpublished data) where collection managers have shared Maddenia data with us for this study. Ling is presently preparing a manuscript to publish a paper on this part of her study.

Ling's second objective is to use molecular and other methods to examine the taxonomy and diversity of selected accessions in cultivation; thereby addressing two other key issues of *ex- situ* conservation, insufficient genetic diversity and debatable taxonomy which confound conservation decisions. There are several steps in this objective. The ultimate step is to do a molecular analysis of diversity and taxonomy; however, to get there several other things have to be done first. Her first step has been to undertake flow cytometry analysis to find out if any of the accessions are polyploids (have more than one set of chromosomes) as polyploids can skew the molecular analysis and she needs to identify them before doing the molecular analysis. (Polyploids are known in *Rhododendron* (Jones et al. 2007); however, except for *R. maddenii* and its close relatives, subsection Maddenia is largely unexamined for this feature).

Her second step in Objective Two is to prepare herbarium samples of each of the New Zealand accessions used in her research. These are needed to check the identity of each accession, but are also a requirement for molecular research (so that in the future other scientists can examine the accessions used in her analysis). After repeated visits to the New Zealand collection sites, Ling has amassed some 200 herbarium samples and is processing them for lodging in the Massey University herbarium. The third step in Objective Two is the molecular analysis itself. Thus far Ling has extracted DNA from 120 New Zealand samples and 107 overseas samples, and the whole batch will be sent to Australia for DNA sequencing. In early 2022 Ling will analyse the data under the supervision of Jen Tate and Sue Davies. Ling plans to publish two papers from this part of the work, one on flow cytometry and one on the molecular analysis. I really look forward to seeing these results; to date nobody has done a comprehensive analysis of the taxonomic relationships in subsection Maddenia (and we know there are many debates about species in this subsection) so Ling's work will be most enlightening.

For Objective Two Ling is using subsection Maddenia accessions from seven New Zealand collections: Pukeiti, three Manawatu sites ('Heritage Park', 'Cross Hills Garden', 'Omahuri Garden') and three Dunedin sites (Dunedin Botanic Garden, 'Tannock Glen', and the Leonie Day Garden). She will also be using selected accessions, mostly wild-collected, from Royal Botanic Garden Edinburgh and the Rhododendron Species Botanical Garden (USA). Tissue samples (leaf segments dried on silica gel) have been collected by Alan Elliott of Edinburgh and Steve Hootman from the Species Foundation and sent to New Zealand with the appropriate permits. Herbarium samples of the international accessions have been collected and will be lodged at Royal

Botanic Garden Edinburgh and University of Washington respectively.

The third objective of Ling's PhD is to undertake a case study on management of *ex- situ* conservation and there will be two activities there. One of these will be a controlled pollination experiment, to determine if seed from 'selfed' plants will develop and germinate successfully. (Controlled pollination is a key process for managing the genetic diversity of *ex-situ* collections, so understanding its effectiveness is useful for practical collection management.) The other activity will be a series of interviews with collection managers to examine how *ex-situ* conservation works in practice, which she will then compare to the theories of *ex- situ* conservation. From these activities Ling will recommend a global conservation plan for subsection Maddenia.

When looking back over this last year, and considering all the delays and impediments generated by covid lockdowns and restrictions, I think things have progressed pretty well. If I had to identify one factor that makes this project work, it would have to be the excellent team of people, all beavering away on different things, who make such great contributions to the overall effort. My most grateful thanks to them all and long may we continue!

Acknowledgements

Many people and institutions, in New Zealand and internationally, have supported or contributed to the work described in this article. The project team very much appreciates their contributions to this work, which allows us to make progress on the *ex-situ* conservation of *Rhododendron*.

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R. przewalskii is a Least Concern species from China that is not often seen in cultivation in New Zealand. Seen here in a Dunedin collection.

R. rarilepidotum is a Least Concern Vireya species from Indonesia (Sumatra). Plants of this species were shared with Eden Garden when they became part of the collections network.

THE LEGACY OF SIR VICTOR DAVIES

Alan Jellyman

Sir Victor Davies was one of Pukeiti's Foundation Members whose influence on the gardens throughout New Zealand, including Pukeiti, is evident today. He was a close friend of Douglas Cook, serving with him on the Massey Grounds Committee; both sharing a love of plants. He did much to promote the use of rhododenrons and native plants in our gardens. His legacy continues today as a result of the Foundation bearing his name transferring its funds to support Pukeiti's ongoing research programme.

The rise in popularity of the genus Rhododendron coincided with the formation of the New Zealand Rhododendron Association and a burst of hybridization in European gardens following the Second World War. This created a renewed and excited interest in these plants. Importation of new varieties rapidly increased, this being best illustrated in Duncan and Davies catalogue listings. The 1951 catalogue featured just two pages of mainly hardy rhododendrons, a choice of 43 hybrids and just a few species. Yet by 1955 the list was 6 pages long with a huge variety of new hybrids and some 23 species.

A key contributor to this success was Arthur Goudie who was highly skilled in grafting rhododendrons using specially imported grafting stocks from The Netherlands. Arthur Goudie was also one of our Foundation Members and played the role of Pukeiti's first superintendent until he relocated to Palmerston North. His son, David Goudie, later served as a Board Member.

Although his nursery business commitments restricted his direct participation in the development of Pukeiti, Sir Victor's constant efforts to introduce new species and varieties into our gardens kept him in regular contact with many Pukeiti members who waited with anticipation for the issue of the latest catalogue. His nursery donated and supplied plants over a very long period.

Sir Victor Davies

Although he retired in 1964, after 60 years in the business, he continued to be active and could often be seen advising customers in the Westown Garden Centre. His service to horticulture was recognised in 1977 when he received a Knighthood. Due to failing health the investiture took place in a bedside ceremony just a few weeks before he died. One notable visit during those last days was that of his English counterpart, Sir Harold Hillier, who happened to be visiting New Zealand.

Throughout his nursery life Sir Victor maintained a principle that a plant should not be named after the nurseryman who produced it. After his death the company sought to have a notable plant bear his name. Initially the plan was to name the variegated *Cordyline australis* for him but a naming dispute arose and the original name 'Albertii' for the clone was retained. In 1990 Jim Rumball selected a camellia to be named 'Sir Victor Davies' from a batch of Les Jury hybrids being assessed for export. It is now widely planted in New Zealand gardens.

Lady Davies' memorial tribute to her husband was the formation of the Sir Victor Davies Foundation for Research into Ornamental Horticulture, on 8 November 1977. Along with other industry and family contributions to the Foundation many areas of research have been supported over the intervening 44 years.

In the early years the Foundation made a series of grants to the Nursery Research Centre based at Massey University. The centre aimed to look at problems associated with the production of ornamental plants, and over time resulted in the introduction

of the virus free daphnes we enjoy today. Other key projects included refining capillary watering systems, and researching the application of slow release fertilisers, and fertiliser regimes for bark based potting mixtures. For the Duncan and Davies Nurseries the introduction of cutting grown understocks for Japanese maples changed nursery practice, bringing uniformity of standards and producing well rooted plants grown to specification for the export market. The wide range of maples available in our garden centres today is a result of this work .

The Davies Family contribution to Pukeiti was furthered in the 1990s with the election of Victor's son Neville Davies to the Board. His business acumen was of great value to the Board and many will remember his energetic volunteering at working bees .

Neville was the secretary of the Sir Victor Davies Foundation and initiated a review of its Trust Deed in 2006. Pukeiti was invited to nominate a Trustee and the Board invited me to fulfil that role.

The Foundation, since 2006, has been chaired by Ian Duncalf along with Professor Ian Warrington representing Massey University, John Davies and Neville and the late Quentin Smart representing the family along with Michele Smart as Foundation Secretary. A range of projects has been supported over recent years including industry research, professional development, Massey University student projects and practical research to find sterile agapanthus varieties suitable for gardens .

Two major projects from this period have been the research and writing of the history of Duncan and Davies Nurseries. 'The Growing World of Duncan and Davies' was published in 2010. A component of the book launch at PukeAriki was the depositing of the full collection of Duncan and Davies Nursery catalogues into the Taranaki Research Centre. Since then the Foundation has supported the project of digitising the entire catalogue collection so that this resource is now available on-line.

Camellia 'Sir Victor Davies' Photo: Tony Barnes

After the death of Neville Davies the Foundation reviewed its future direction, changes in the shape of the ornamental nursery industry and the diminishing number of funding applications being received. In due course it was decided to wind up the Foundation and to consider options for the Trust Fund that matched the objectives of the Foundation's Trust Deed. Pukeiti was seen as one alternative and representations were made to the Pukeiti Board. In essence the Foundation offered to transfer its Trust Fund to Pukeiti without conditions, but with an understanding of the fundamental objectives of \ research into ornamental horticulture. The Board accepted this offer and in February 2021 the legal process was completed and funds transferred.

So now the legacy of our Foundation Member, Sir Victor Davies, continues as Pukeiti plays its part in the research and conservation of rhododendrons. The contribution of Neville Davies to this legacy of the Foundation and to Pukeiti should also be remembered.

TRADITIONAL USES OF RHODODENDRONS ... WHO'D HAVE THOUGHT?

Andrew Brooker

Westerners probably can't help but take a romantic view of rhododendrons, given their bold colours, large flowers and occasionally exquisite scent. It's a view that's evolved ever since these wondrous plants were introduced to cultivation.

But perhaps there's another view, based on uses of which we're largely unaware, that need to be considered as a part of the overall conservation strategy for the future. We all know that plants have been put to a huge variety of uses by humans since time began. Look at the rimu 'beer' brewed by Captain Cook to counter the effects of scurvy in his crew, or the long-held traditional knowledge of medicinal plants from our own flora, and used by Maori.

A number of scientific papers have been published on traditional uses of rhododendron – see the references below. Most focus on the pharmacology of *Rhododendron arboreum* (fig.1) and its subspecies. They generally conclude that while there's evidence of the value of the traditionally claimed properties, more research is needed take the data to another level.

But the studies also highlight other uses. If we work our way up from the roots to the flowers, we can see consistencies among the peoples of the different regions and nations within and adjacent to the Himalaya.

ROOTS

A decoction of the roots is used to treat early-stage cancers in Nagaland, India. The studies referenced here do not specify which type of cancer.

WOOD

Most of us probably know that rhododendron wood is commonly used for firewood or to make charcoal for blacksmiths' forges. But some of the other traditional uses may surprise.

In Arunachal Pradesh, India, the close-grained timber is used for tool handles, pack saddles, gift boxes, and gunstocks and posts.

It's put to similar uses in Nepal, most notably as the handle of the traditional kukri – the legendary knife of the Gurkha.

BARK

The bark within the *R. arboreum* subspecies can be quite variable in appearance and texture, so it's interesting to learn how it has been used.

It was ground and blended with leaves to be used as a type of exfoliator to reduce the roughness of the skin. In Pakistan, the distilled bark juice was used to treat coughs, piles and liver disorders. (Fig.2)

LEAVES

Throughout the Himalaya, the young leaves of *R. arboreum* have been

buransh juice

applied to the forehead as a treatment for headaches. It was unclear from the referenced studies whether the leaves were ground and mixed to a poultice, or simply laid upon the head.

A blended mixture of ground leaves isused in Uttarakhand, India, for the treatment of external parasites. And a dried leaf tincture was used as a homeopathic remedy for rheumatism and gout.

The aromatic foliage and twiggy branchlets of *R. anthopogon* have long been used as incense in Tibetan monasteries to provide a calming and cleansing fragrance. Oils are released when the leaf is crushed or burned.

In fact this rhododendron essential

R. arboreum spp *albotomentosum*

oil can be purchased on-line. It's used by homeopaths, naturopaths and others in skin creams and the like. One such product can occasionally be found in the Rainforest Centre at Pukeiti. The essential oil is reputed to have an anti-inflammatory property, and as such is for external use.

The large woolly leaves of both *R. falconeri* and *R. hodgsonii* also have a more mundane use – packaging around fruit for transport. When fresh and soft, the leaves provide just the right cushioning effect.

The indumentum of these two species, and others like them, are also used to make wicks for oil lamps. (Fig.3)

FLOWERS

At last we come to the crowning spring glory of our rhododendrons, whose uses of course include the culinary. Many may recall presentations by Professor Guan Kaiyun's at the Auckland conference and at Pukeiti's event, when he crafted together images of *R. decorum* the plant, with those of *decorum* the ingredient. So yes, it seems the corollas of some species are also shredded and eaten, either raw in a salad or cooked stir-fry style. It's possibly not to our tastes – but why not try it and find out?

In Jammu and Kashmir, India, and in parts of Nepal, chutneys and jams are made from the red corollas of *arboreum* flowers.

Buransh (the local Hindi word for *R arboreum*) juice is now commercially made and sold in Uttarakhand, India. This is a cold-pressed juice made from petals only, and there are YouTube videos showing the process and extolling the benefits. These include 'curing' diabetes, and as a general health tonic as well as for stomach ache and heart-related problems. (Fig. 4)

Dried flowers were also fried in ghee (clarified butter) and taken to aid in the treatment for blood disorders.

Last but not least, the rhododendron serves as the national flower of the Himalayan region, where traditional values remain very much part of everyday living. Rhododendron garlands can be seen in the spring decorating homes, temples and the like. Garlands of vireya flowers are also used to similar effect in Papua New Guinea where they can be seen decorating the windscreens of vehicles and the hair of the local women.

Who would have thought the humble rhododendron had so many uses? And it is these traditional uses that may hold one of many keys to conservation in local areas where the species is cherished and utilised. Food for thought.

Rhoododendron arboreum bark

falconeri indumentum

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You-tube: Buransh juice making

NEW REGISTRATIONS 2021

Brian Coker

The following cultivars have been registered with the Royal Horticultural Society, England as international registration authority for the genus Rhododendron and added to the New Zealand Rhododendron Register.

R. 'Koha'

R. zoelleri (open pollinated) x *konori*

A natural vireya seedling selected by Pukeiti Rhododendron Trust and subsequently grown, named and registered by the Taranaki Regional Council at Pukeiti. The name is Maori for gift – acknowledging the gift of a natural seedling.

Flat umbel trusses of 5 campanulate magenta flowers fading to cream at the base of the tube. The lobes are flared and margins wavy. Matt green leaves are rounded at base and obtuse at apex. The flowers have a scent of sweet carnations. In 10 years the plant will grow to 3m in height and width of 2m.

386 *R.* 'Maddy Bern'

R. maddenii subsp. *maddenii* x 'Bernice'

A rhododendron hybridised and named by Graham Smith of Waitara, initially grown by the Pukeiti Rhododendron Trust and registered by the Taranaki Regional Council.

Tubular funnel-shaped trusses hold six flowers, each with 5 lobes and wavy margins. Purple buds open to reveal very fragrant cyclamen-purple lobes fading to white with a peach flare at the top of the corolla and the outside of the corolla is Solferino-purple which follows up the centre of each lobe in a lighter shade. Brown scales are dense on the leaves and also present on the lower corolla, calyx and pedicel. Grows to a height of 1.8m and width of 0.7m in 10 years.

387 *R.* 'Elouise'

R. 'Silver Thimbles' x unknown

An open pollinated seedling of 'Silver Thimbles' selected, grown and introduced by Brown's Nursery, Tauranga and named and registered by David and Pauline Brown of Brown's Nursery.

Open, upright trusses with a cluster of 4-5 campanulate flowers each having 5 lobes with wavy edges. The outside of the corolla is white with a faint lemon hue nearer the base and the stalk of the flower is bright pink. The inside of the corolla is white with soft pink flushing on the lobe margins as it ages. Anthers are orange with soft white/lemon stamens.

Glossy leaves are 30mm long, initially light green and maturing to mid-to-dark green. Plants have a nice compact habit growing 0.5m x 0.5m in 9 years.

388 *R.* 'Simply Red'

R. 'Saxon Glow' x 'Vladamir Bukovsky'

The cross was made by David Brown of Tauranga, grown and introduced by Brown's Nursery, Tauranga and named and registered by David and Pauline Brown.

Upright open trusses of 3-4 flowers with 5 lobes and flat margins. Flower colour is uniform dark smokey-red fading through to a lighter shade at the base. The 10 stamens are dark tending to black. Usually mass flowering in February/March and again August/September.

New green leaves have a thin red rim and the calyx of 15mm is light green, also with a thin red rim fading to white at the base.

Plants have a good compact habit and are tight growing with a height of 0.8m x 0.9m in 10 years.

389 *R.* 'Lorraine Paterson'

R. protistum x *hodgsonii* 'Poets Lawn'

Selected and grown to first flower by Lorraine Paterson of Paterson Park and Gardens, Gore, and named and registered by her daughter-in-law, Sharon Paterson.

A ball shaped truss of 28-30 ventricose campanulate flowers with each corolla having 7 lobes with wavy margins and being 70mm long and 65mm wide. The white to pink calyx is 10mm in length. Matt green decurved oblanceolate leaves are 380mm x120mm with silvery grey indumentum when young.

The original plant has grown to a height of 5m, width 6m in 40 years.

Registering new rhododendrons

The registration form (November 2018 version) can be obtained from the NZRA website, *www.rhododendron.org.nz* or direct from the Registrar *b.hcoker@xtra.co.nz*.

Anyone contemplating naming a rhododendron (even if it is not certain whether formal registration will follow) can have the Registrar check whether the name is available and acceptable for registration and arrange for the name to be reserved. This will then avoid any difficulty further down the track and ensure that the name will be accepted should formal registration be completed at a later date.

The Registrar holds a copy of the RHS Rhododendron Register and Checklist (together with all updates) which lists all formally registered rhododendrons together with other named but unregistered rhododendrons. You are welcome to email the Registrar if you have any queries relating to parentage or formal description of any rhododendron.

Erratum

The correct name for #384 **'Ruby Belle'** listed under the New Registrations in The Rhododendron 2020 is **'Dainty Belle'**.

OLD SIGNS: THE PAST REMEMBERED

R. 'Else Fry'

Pukeiti
Pukeiti Rhododendron Trust Inc.

PUKEITI RHODODENDRON TRUST INC.
www.trc.govt.nz/gardens/pukeiti/pukeiti-rhododendron-trust/

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Secretary	Anne Howard Email: pukeiti@pukeiti.com
Chairperson	Gordon Bailey Email gordon.bailey@codc.govt.nz
Members' Committee Chairperson	Heather Robson

New Members Welcome

Subscription $40 per household.

Taranaki Regional Council

TARANAKI REGIONAL COUNCIL
www.trc.govt.nz

Office hours	Mon-Fri 8am - 5pm
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R. 'Jack Anderson' at Pukeiti