

Aotearoa

A horticultural road trip across New Zealand



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(All images from the author, Emma Leaper unless otherwise credited)

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In New Zealand, I was astonished by the kindness and openness I was met with. There are too many horticulturalists to name in full, but I would like to especially thank Barbara Wheeler, Curator at Auckland Botanic Gardens, Megan Ireland, Team Leader at Ōtari Native Botanic Garden and Wilton's Bush Reserve, and Dylan Norfield, Collections Supervisor at Dunedin Botanic Garden, for their enthusiastic welcome and generosity of expertise.

Introduction

New Zealand's environment is unique, with high levels of endemism in its flora and fauna, which has evolved quite separately from the rest of the world. The country extends across both temperate and subtropical biomes, and its ecosystems are hugely varied. Human settlement from 1300AD has had a significant impact on the country; logging, agriculture, and the introduction of invasive species has resulted in a severe loss of biodiversity and native ecology (Wilmshurst, 2022) (Department of Conservation, 2020). Through my time in New Zealand, I came to appreciate how it's history and current ecological state effects amenity horticulture, and how its gardeners consider the plants they use.

Having graduated the Level 4 Diploma in Horticultural Practice at RHS Wisley in August 2022, I undertook this bursary trip before returning home to Cornwall to seek a good position. My focus is ornamental horticulture, I worked in the arts before retraining several years ago, and have found many transferable skills related to garden design.

I worked and volunteered at several gardens in West Penwith, and in the winter of 2019, I spent 5 months working at Tresco Abbey Garden, where I first developed my passion for New Zealand natives, particularly the woody plants. I've since grown very interested in the translation of their indigenous species into a garden setting. There are many New Zealand plants already in use in UK horticulture, however I focussed on less common species, and those which could thrive in Cornwall's temperate, maritime climate. This study trip was a once in a lifetime opportunity for me to see New Zealand native plants in their environmental niches and within their wider plant communities, and how the botanic and ornamental parks and gardens out there cultivate and display them to best effect.

I spent several months researching the kinds of plants which might fit my criteria, their ecosystems and potentially geographic locations, as well as establishing communication with contacts from botanic gardens and private collection owners. Everything came together to shape my itinerary and by the time I left, I had compiled an extensive 'wish list' of plants, and felt confident I could identify a great many in the field.

Having attended many horticultural trips through the RHS Diploma course, I have come to the conclusion that while it's important to go into a meeting with clear aims and questions, better rapport is established when conversation is allowed to evolve naturally. I found during my time in New Zealand that, while I introduced particular subjects, people invariably spoke about things I hadn't considered. This made the exchanges more varied and relationships more meaningful.

Note – While a wide variety of plants were encountered and recorded, this report focusses on native flora only. Appendix B is a plant list of the species I identified (no repeat entries).

Aims and Objectives

To broaden my understanding of New Zealand's indigenous flora (i.e., plant identification, habit, cultivation techniques, ornamental potential)

To study plants from different ecological environments (i.e., lowlands, tussockland, coastal, forest).

To compile a list of plants with potential for use in a Cornish climate (focus on less common species)

To ask about the pressures effecting native plants, specifically climate change and biosecurity threats

To gain insight into the conservation efforts underway for threatened native flora

To speak to horticulturalists out there for advice on cultivating such plants, and to better understand any unique considerations or challenges they may face

To build professional relationships with individuals from the New Zealand horticulture industry

To share my experiences and any outcomes in the UK

Itinerary



Figure 1: Locations visited (Google Maps, 2022)

Date	Itinerary	Accommodation	Notes
9th Oct	Travel to London Heathrow	Premier Inn	
10th	Flying (UK-Dallas-Sydney-NZ)		
11th	Flying (35.20hrs total)		
12th	Land in Auckland/ rest	Airport hotel	Took covid test- negative
13th	Collect hire car/ travel north	Whangarei	3hr drive to Whangarei
14th	Waipoua Forest	Whangarei	2hr drive to forest. Felt unwell- covid test negative
15th	Whangarei Quarry Gardens	Whangarei	Felt very unwell
16th	COVID isolation	Auckland	3 hr drive to Auckland. Covid test was positive. Isolation requirement 7 days from onset of symptoms (12/10/22). Cancelled meeting with Jocelyn Coyle
17th	COVID isolation	Auckland	
18th	COVID isolation	Auckland	Last day of COVID isolation
19th	Auckland Botanic Garden/ Fernglen Gardens	Auckland	9.00am meeting with Curator, Barbara Wheeler
20th	Ayrlies Garden and Wetlands	Auckland	10.00am tour with trustee, Jack Hobbs
21st	Hamilton Garden	Hamilton	2hr drive
22nd	Pukeiti Garden	New Plymouth	4.5hr drive
23rd	Egmont National Park	New Plymouth	2hr drive
24th	Paloma Garden	Wellington	4 hr drive to Wellington
25th	Rest/ type notes	Wellington	
26th	Otari Native Botanic Garden	Wellington	Megan Ireland
27th	Wellington Botanic Garden	Wellington	
28th	Ferry to the South Island/ travel north	Nelson	3 hr ferry, 3.5hr drive
29th	Abel Tasman National Park- east coast	Nelson	2 hr driving
30th	Abel Tasman National Park	Nelson	4hr drive there and back
31st	Paripuma Garden	Kaikoura	10.00am meeting with Rosa Davison. 2.3hr drive to Kaikoura
1st Nov	Christchurch Botanic Garden	Christchurch	4.5hr drive to Christchurch
2nd	Riccarton Bush/ Christchurch urban planting	Christchurch	10.30am meeting with owner, Jill Simpson. 4hr round drive
3rd	Broadfield New Zealand Landscape Garden	Christchurch	9.00am meeting with owner, David Hobbs
4th	Hinewai Reserve/ Fisherman's Bay Garden	Christchurch	
5th	Dunedin Rhododendron Group	Dunedin	5 hr drive to Dunedin. Meeting with Dylan Norfield
6th	Larnach Castle	Dunedin	
7th	Dunedin Botanic Garden	Dunedin	Meeting with supervisor, Robyn Abernathy
8th	Travel to Queenstown	Queenstown	3 hr drive
9th	Hiking in the peaks	Queenstown	
10th	Rest/pack/return hire car	Queenstown	
11th	Fly Home		

Report

Waipoua Forest 14th October

My first stop on this trip was to visit Waipoua, the largest remaining tract of native kauri forest (*Agathis australis*) in Northland. As I drove further north, the vegetation became denser and lusher. The rain came in sporadic bursts, it was very cloudy and humid, the temperature peaking at 17 °C. The roads became steeper, and wound in tight, scary bends up through the hills. I was delighted to realise that I recognised many of the plants in the verges – *Brachyglottis repanda*, *Schefflera digitata*, *Dacrydium cupressinum*, *Phyllocladus trichomanoides*, *Piper excelsum*. The bright red and yellow flowers of *Knightia excelsa* caught my eye, and I was pleased hours later to spot *Toronia toru*, the only other Proteaceae plant native to New Zealand.

I visited the ‘Kauri Walks’, going through a biosecurity gate at the car park, where you have to brush and disinfect your boots (Figure 5). The Department of Conservation (DOC/Te Papa Atawhai) has tight controls to prevent the spread of kauri disease, the oomycete pathogen *Phytophthora agathidicida*. It damages the root system, reducing a tree’s ability to take up and transport water and nutrients, leading to dieback and ultimately death (Bradshaw, et al., 2019). The DOC maintain defined walking tracks to limit damage to the forest, using raised decking to keep potentially contaminated footwear off the shallow tree roots (Department of Conservation, 2022).

The heavy rain showers raised the humidity and brought the temperate rainforest to life. I was on the path to see ‘Te Matua Ngahere’ (Father of the Forest), the widest kauri in New Zealand, with a girth just over 16 metres. When I rounded the bend and saw it come into view, it was breath-taking. After this I drove on to see Tāne Mahuta (Lord of the Forest), estimated to be between 1,250 and 2,500 years old (Figure 4). It is the largest living kauri known to stand today (Department of Conservation, 2022).



Figure 3: Biosecurity gate



Figure 2: Tāne Mahuta (*Agathis australis*)

A guide from the DOC said that over 100 species of plants live in Tāne’s crown. I noted the broken off branches which I found out were due to lightning strikes some years ago, and were already healing over. As a Māori woman she explained the cultural and emotional importance these trees held for her, and the honour she felt in helping to care for them. Walking the tracks through this ancient forest, so alien to the

landscapes back home, was mesmerizing (Figure 6). Standing in front of the Te Matua Ngahere and Tāne Mahuta was a humbling experience I will never forget.



Figure 4: Waipoua forest

Whangārei Quarry Gardens and Mount Manaia 15th October

Northland receives annual rainfall of 1500-2000 mm per year and the highest average temperatures in New Zealand, creating a subtropical climate (Northland Regional Council, 2022). Whangārei Quarry Gardens is a community project in its early stages (20 years old). The quarry site provides a sheltered environment, with the stone capturing and radiating heat to create a perfect microclimate for growing exotic subtropical plants. While my focus is native flora, I wanted to visit this place as it reminded me of the Eden Project in Cornwall. It has Bromeliad and Arid Gardens, a Five Senses Garden and a Camellia Collection built around cultivars produced by local plant breeders Jim Finlay and Os Blumhardt. In 2002, Jim Finlay donated 115 of his fragrant Camellias, 49 of which are exclusive to Whangārei Quarry Gardens. The top of the garden features a man-made lake fed by two waterfalls. The outlet spills into a rocky stream crossed by two footbridges and stepping stones (Whangarei Quarry Gardens Trust, 2020).

Plants I particularly enjoyed included several large *Ficus dammaropsis* (native to Papua New Guinea), with pleated leaves up to 60cm across (Figure 9). *Metrosideros collina* 'Tahiti' is an attractive dwarf shrub (to 1.5m by 1m), with clusters of orange-red flowers produced sporadically throughout the year and silvery new foliage (Auckland Botanic Gardens, 2022). The species comes from French Polynesia and the Cook Islands (Figure 8). There is a *Metrosideros kermadecensis* 'Tahiti' available from the Burncoose Nurseries that I believe to be a synonym (Burncoose Nurseries, 2022).



Figure 6: *Metrosideros collina* 'Tahiti'



Figure 5: *Ficus dammaropsis*

I then travelled east to Parua Bay, to see the native grey mangrove (*Avicennia marina* subsp. *australasica*), which, unlike many other native plants, has responded well to human settlement, thriving in the increased sedimentation (Figure 10) (Figure 11). The large mangrove populations are quite controversial, with clearance operations being met with resistance from environmentalists. It's accepted that they are an important part of harbour ecosystems, they also help stabilise land and absorb flood water (Dencer-Brown, Alfaro, Bourgeois, Sharma, & Milne, 2020) (Guthrie, 2020). Local councils are increasing restrictions on where and when mangroves can be cleared. Along the roadside were impressive avenues of *Araucaria heterophylla*, which are found throughout the Northland.



Figure 7: Mangroves in Parua Bay



Figure 8: Capsule fruit

I decided to hike Mount Manaia (420m high) on the nearby Whangārei Heads peninsula. It is a remnant of a large, 50 km diameter volcano that erupted 20 million years ago (Parkes, 1992) (Figure 14). The track was through lush native forest, with *Cyathea medullaris* and *Rhopalostylis sapida* (nīkau palm) forming a large part of the canopy. There are nīkau growing at Tresco Abbey Garden and this is a plant I think should be tried on the Cornish mainland.

Microsorium pustulatum covered many surfaces (I prefer *M. scandens* for aesthetic value), and the strappy leaved epiphyte, *Collospermum hastatum*, was hanging out of every tree. Other plants I noted were; *Rubus cissoides* (a prickly, scrambling vine), *Astelia nervosa*, *Myrsine australis* and *Pimelea prostrata*, the 'New Zealand Daphne'. I was very excited to see the dainty orange flowers of *Rhabdothamnus solandri*, a wiry shrub recommended to me. It's a monotype, the only native gesneriad to New Zealand (Figure 13).



Figure 10: View from halfway up the peak



Figure 9: *Rhabdothamnus* flower

COVID isolation 16th – 18th October

Since I landed, I had been feeling unwell, with a sore throat and dizzy spells. I tested for COVID twice and was negative, so I chalked it up to a combination of jet lag and a head cold, and tried to power through. However, on the 16th I started to feel very feverish, I tested again and was positive for COVID 19. The New Zealand rules meant I had to isolate for 7 days from the onset of symptoms (12/11/22). I was able to move my itinerary around so that I only missed one visit, Totara Waters Subtropical Gardens. I used up my scheduled rest days, but I felt I'd rather do that than cancel any more gardens on my list.

Auckland Botanic Gardens (ABG) 19th October

I met with the Curator Barbara Wheeler, who gave me an in-depth tour of the garden. We had been in communication for several weeks prior to my visit and this allowed for more familiar conversation. She explained that for ABG, engaging the public is key, so very early on they decided to blend taxonomy with ornamental displays. All the plants in the garden are available in the trade (which surprised me). And all plants are trialled for performance in the Auckland climate before being planted out. 'Plants for Auckland' is a certification of excellence not dissimilar to the AGM (Auckland Council, 2022). In the foyer there are helpful guides to 'best plants for...shade, climbers, ground cover' specific to the region. A current trial they are doing is for low-fertility *Agapanthus*, less likely to seed everywhere (it is considered a weed here). The Auckland Botanic Gardens covers 64 hectares of land, including 10 hectares of native forest. It opened to the public in 1982, making it a young botanic garden by world standards. There are currently 34 staff at ABG, a field team of 22 gardeners, with an additional 100 volunteers.

ABG is run by Auckland City Council along with numerous parks in the city. Many of New Zealand's botanic gardens are integrated with public parkland, are free to enter and some are not locked at night. Theft of plants is an issue, as is vandalism. Being publicly funded means that budgets are tight, restricting the work these organisations can do. 4-5 people work in the nursery, growing not only the specialist plants for ABG, but also stock for the 32 parks across the city. Seed is collected from these parks and brought on as 1–2-year-old plants (the re-vegetation programme of regional Auckland City parks). This is something Barbara

wants to stop, as the nursery is stretched thin and most of these common plants could be purchased cheaper from a wholesaler (Wheeler, 2022, pers. comm.).

Biosecurity is a serious concern at Auckland, all plants are quarantined before entering the garden. There is a 'Plant Pass' voluntary certification scheme for nurseries that recognises good biosecurity practices (New Zealand Plant Producers, 2022). Auckland can and does buy from uncertified nurseries (many smaller home businesses are uncertified). There are lots of specialist nurseries going out of business because they cannot compete with the big operations (similar to the UK), this 'limits the plant palette as everyone has the same basic plants' (Wheeler, 2022, pers. comm.).

Barbara spent over 20 years working at Dunedin Botanic Garden, then completed the Longwood Professional Horticulture Program before taking up a job at ABG as Curator one year ago. As a large part of my RHS Diploma focused on management skills, we spent a long time discussing her new role and its challenges. ABG is in south Auckland, a very economically deprived area compared to the north of the city. It has a high minority ethnic population locally but that is not reflected in the staff at the garden, and diversity is an issue that Barbara wants to tackle. Another challenge is ensuring everyone is working to uniform standards of horticultural practice, this is something she achieved at Dunedin and wants to instil at ABG, where the different areas are managed very individually. One of Barbara's key aims is to improve ABG's star rating from the New Zealand Gardens Trust, from 5 star to 6 (New Zealand Gardens Trust, 2022).

I was particularly taken with the Threatened Native Plants area, with flora from Auckland and Northland regions growing in reproduced habitats - lava fields, wetlands, lowland forests, offshore islands, rocky bluffs, salt-marsh and dunes (Figure 15). There were many plants of interest – *Pomaderris rugosa*, *Streblus smithii*, *Coprosma acerosa*, *Kunzea sinclairii*, *Sonchus kirkii*.



Figure 11: Threatened Native Plants Garden

I took the 'Biosecurity Trail' around the garden, to learn more about the worse threats to native flora and fauna. Many of the pests and diseases listed affected commercial crops. One that stood out to me was myrtle rust (*Austropuccinia psidii*), a wind-borne fungal disease which infects members of the Myrtaceae

family. It's currently present in the North Island and top of the South Island. Orange-yellow pustules develop on the leaves and stems, progressing into wounds on the plant. Leaves can become deformed or drop, fruits can be damaged (an issue for the edible crops like *Acca sellowiana*), canopy dieback and stunted growth can eventually result in plant death. New Zealand has 37 native myrtles, including *Metrosideros* spp., *Leptospermum Scoparium* and *Kunzea ericoides*. The native species *Lophomyrtus bullata* is most susceptible, and widely used as hedging and in large-scale plantings (Biosecurity New Zealand, 2022). While myrtle rust is a serious problem in Australia, it is not listed on the UK Plant Health Risk Register, nor the Centre for Agriculture and Bioscience International (CABI) website.

The New Zealand Rose Garden was charming, combining garden roses with native plants. *Cordyline australis*, *Meryta sinclairii* and *Rhopalostylis sapida* gave the area height, while tree ferns lent an exotic feel (*Cyathea brownii*, *Dicksonia squarrosa*) (Figures 16 and 17).



Figure 13: *Rhopalostylis sapida* in the rose garden



Figure 12: *Rosa* 'Karl Foerster'

Fernglen Gardens 19th October

Barbara invited me to join her after work to visit another garden – Fernglen (Figure 19). It included 9 acres of kauri bush with a half-acre under cultivation. The life's work of Bill and Muriel Fisher, the garden is dedicated to growing and preserving only native plants (now cared for by the Auckland Council Parks Department) (Fernglen Garden, 2019). We met another horticulturalist there called Jonathan, who looks after Pukekawa/Auckland Domain (Auckland City Council, 2022). It was really wonderful to spend the afternoon admiring plants with fellow professionals.

Highlights included; *Pachystegia insignis* (the Malborough Rock Daisy), *Geranium traversii*, *Myrsine aquilonia* (lovely heart-shaped leaves) (Figure 18) and the mat-forming *Gunnera prorepens*. There was a fernery clad in old *Cyathea* trunks, Jonathan explained that it had become so popular a landscaping material, that people had started cutting them down in the wild and selling the trunks. Inside was *Leptopteris superba* (Prince of Wales Feather Fern), *Asplenium lamprophyllum* and *A. polyodon*. Barbara identified *Lygodium articulatum* to us, an unusual climbing fern endemic to the North Island forests



Figure 15: Fernglen Garden



Figure 14: Myrsine aquilonia

Jonathan and Barbara had recently returned from the 7th Global Botanic Gardens Congress; ‘*Influence and Action: Botanic Gardens as Agents of Change*’ in Melbourne, Australia. It explored how botanic gardens can play a greater role in shaping the future. ‘*With accelerated loss of biodiversity across the globe, increased urbanisation, population growth and climate change, our need to work together to find new solutions for the future has never been greater*’ (Global Botanic Gardens Congress, 2022). Barbara felt that institutions in New Zealand are a little late to the conversation of climate change, something she wants to address at ABG.

The bush contained ancient rimu (*Dacrydium cupressinum*) and kauri and there were excellent examples of divarication (which effects nearly 10% of native plants). Shrubs and trees grow small leaves on densely interlaced stems (an adaption either to avoid browsing by moa, or to cope with dry, windy or frosty conditions) (Lusk, Wiser, & Laughlin, 2020). Barbara identified a good example of heteroblasty in New Zealand trees, where the juvenile plant exhibits divarication until it reaches 2-4m, then abruptly develops straighter branches bearing large broad leaves (Figure 21 and Figure 22).



Figure 16: *Elaeocarpus hookerianus* juvenile form



Figure 17: *E. hookerianus* mature branches (Golik, 2017)

While at Auckland Botanic Garden, I was introduced to the Garden Manager Jack Hobbs, who has worked at ABG for 40 years. He is also a plant breeder, having bred the Veronica 'Wiri' series. Jack is a trustee at Ayrlies Garden, and he offered to show me around during my visit. I subsequently realised during my trip how well known and thought of Jack is throughout the New Zealand horticultural community. Every gardener I met seemed to know him and have kind words, so I was pleased that I got to spend this day with him.

Ayrlies is one of New Zealand's best-known gardens, characterised by sweeping lawns and informal but detailed plantings around ponds and waterways. The extensive landscaping was inspired by the owners' Beverly and Malcolm McConnell's visit to Stourhead. The four main ponds were built in the late 1970s, with pumps circulating the water around, aerating it as the water passed over rocks in small waterfalls (Hickman, 2012). The north-facing valleys were planted with oaks, ash and Liquidambar, the latter providing fiery autumn colour from March until August and now provide a sheltered microclimate from the exposed coastal winds. The garden gets 1800mm of rain a year, and high rainfall can alternate with drought conditions in the summer, cracking the heavy clay soil.

I was introduced to Head Gardener Ben Conway, who has worked at Ayrlies for 16 years. There is a team of 3 gardeners looking after 15 hectares (4 of which is gardened intensively). The entrance area from the car park is deliberately subdued, with many tones of green. Ben emphasized the value of native plants for form and texture - *Blechnum discolor* bursting through a sea of *Carex comans*, low carpets of the alpine water fern *Blechnum penna-marina*, clipped hummocks of *Coprosma virescens* and flowering *Pomaderris phyllicifolia*, all growing close together along the man-made stream (Eadie, 2014). We walked across to Temple House, a Mediterranean style part of the garden, with *Cupressus Sempervirens* 'Totem' backing a small neoclassical temple. This prominence looks down the valley to the Cypress Pond (Figure 23). The beds on either side were a delightful mix of Acers, bromeliads, roses, ferns, vireya Rhododendrons, Kniphofia and Digitalis, the blend of colours somehow harmonious (Figure 25). Louisiana irises, *Iris sibirica* and *Iris ensata* were planted in dense clumps around the pond, to give a prolonged flowering display.

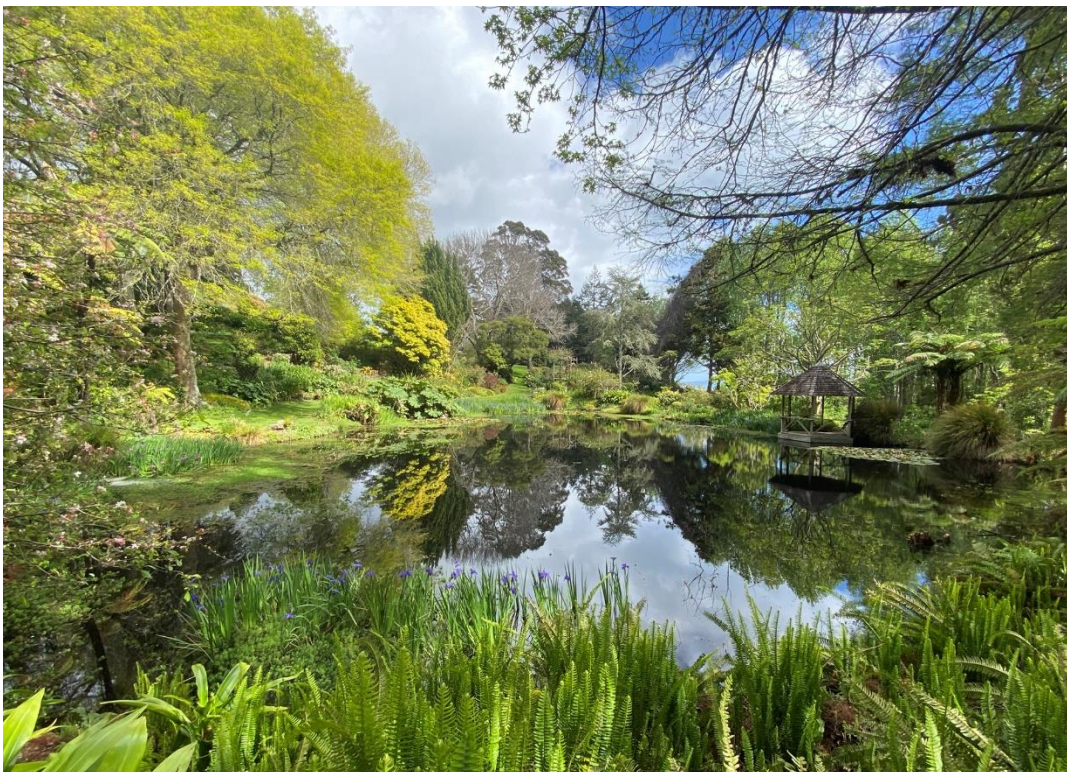


Figure 18: Cypress Pond

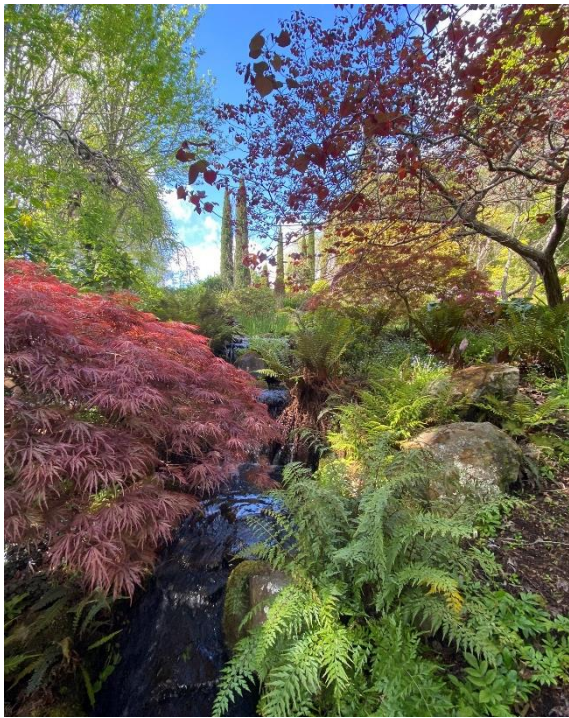


Figure 20: Streamside planting



Figure 19: Emma Leaper, Beverley McConnell, Ben Conway

After my tour Jack and Ben took me to see Beverly. She is now in her advanced years and rarely sees visitors, so I felt privileged to get the chance to speak to her (Figure 24). She was happy to share her experiences developing Ayrilies, yet felt most proud of the Wetlands area which links the garden to the waters of the Hauraki Gulf. Beverly bought the land and restored it with help from ABG staff, planting over 15,000 native seedlings in 2002. It took the first 10 years for the plants to establish, in the last decade they've formed dense vegetation, a perfect refuge for wildlife such as the Paradise Shelduck, Australian Swamphen, New Zealand Scaup and Dabchick (Ayrilies Garden and Wetlands, 2019).

Hamilton Gardens 21st October

Hamilton Gardens have been evolving since the 1980s, like ABG, it is also owned and managed by the City Council. The emphasis at Hamilton is on different types of garden design, with 21 gardens grouped into the Paradise, Landscape, Cultivar, Productive and Fantasy collections (Figure 28) (Hamilton Gardens, 2022).

Walking through was very disorientating as each garden was enclosed either by walls or hedges, with narrow entrances in and out. It felt like wandering through a maze, I've never experienced anything like it. Each 'room' was so completely distinct in its theme, landscaping, and planting. The structures were life-size, yet careful use of trees and screens meant they weren't visible when in a different area, making the 'reveal' as you emerged from the connecting corridors spectacular.



Figure 21: The Indian Char Bagh Garden



Figure 22: The Ancient Egyptian Garden

The Indian Char Bagh Garden recreated the traditional four-quartered design used in 16th-17th Century Mughal palace gardens (Figure 27). The excessive use of faux white marble really set off the bright colours of annual bedding (*Petunia*, *Calendula* and *Tagetes*). It was strange to walk through the New Zealand take on an 'English Flower Garden' with its red brick paths, white pergolas, trained roses and low box hedges. The Modernist Garden was designed 'in an American West Coast tradition' - large *Agave americana* dominated the beds, softened by swathes of *Anemathele lessoniana*, the hard landscaping was smooth blue-painted concrete, with a swimming pool dominating the centre. It felt like a David Hockney Californian pool painting. Other spaces included the Surrealist, Italian Renaissance, Tropical, Tudor, Japanese and Conceptual gardens.

The Te Parapara Garden at Hamilton has been designed to showcase the plants Māori people cultivated for food, medicine and cultural purposes (Figure 29). Māori horticulture is closely linked to spiritual beliefs and gardening practices held ritual aspects. Crops included taro (*Colocasia esculenta*), tī pore (*Cordyline fruticosa*) and the sweet potato kūmara (*Ipomoea batatas*). The latter was planted into mounds (puke) to help with drainage and prevent them rotting (Figure 30). Māori often mixed wood ash and river gravel into the soil to retain warmth and lengthen the growing season. Come harvest, the tubers were stored in underground pits (rua) over winter, so some could be eaten and the rest planted out in the next spring since *Ipomoea batatas* doesn't set seed in New Zealand (Te Ara, 2022).



Figure 24: A recreated Māori garden with planted Kumara



Figure 23: Māori used the fibres of *Phormium* spp. in textiles

Pukeiti 22nd October

Pukeiti is located next to Egmont National Park, on the slopes of Mount Taranaki. It includes 360 hectares of original and regenerating rainforest, as well as 26 hectares of garden, famed for its Rhododendron collection, notably the tropical vireyas (Figure 31). Pukeiti was established in 1951 by Douglas Cook (of Eastwoodhill Arboretum), and others forming the Pukeiti Rhododendron Trust. Since that time, over 5000 *Dacrydium cupressinum* have been planted to replace those lost by logging from European settlers (New Zealand Gardens Trust, 2019).

The modern visitor centre had information on the history of the site, I was fascinated to learn that Taranaki was rich in oil and minerals, and Pukeiti was mined in 1918 for ochre for paint manufacture. The long winding road I took to reach the garden had been formed from teams of men using picks and shovels. Some of the men planted Rhododendron on the verges to brighten up the area (these are now large specimens I spotted flowering as I drove past).



Figure 25: 15m *Cyathea medullaris* at Pukeiti

The flowering season at Pukeiti starts in July with the large-leaf rhododendrons in the rainforest canopy, followed by Magnolias and Camellias. By the time I arrived in October the early flowering species had gone over, and the late flowering ones were still in bud. Many giant Himalayan lilies (*Cardiocrinum giganteum*) were just emerging, ready to flower in December. I was particularly taken with *Rhododendron himantodes*, growing in the warmth and shelter of the visitor centre (Figure 33).



Figure 27: *Rhododendron himantodes*



Figure 26: *Rhododendron* sp.

The broadleaf tree *Beilschmiedia tawa* forms most of the canopy at Pukeiti, growing 35m tall, and I was impressed to see *Ptisana salicina*, the largest ground fern in New Zealand, thriving on the forest floor (fronds can grow 5m long) (Metcalf, 2003). There were particularly large specimens of *Fuchsia excorticata* (kōtukutuku), with handsome reddish peeling bark. I spent some time admiring the vivid blue pollen on the flower stamen (Figure 35). These are grown in Cornwall already but I can't understand why not more

widely? At the bottom of the valley, there was a dense carpet of *Elatostema rugosum*, a native groundcover found on to the North Island. It grows in damp, shady areas, and has attractive purply-red to green leaves with prominent veins and serrated margins (Figure 34) (New Zealand Plant Conservation Network, 2022).



Figure 29: *Fuchsia excorticata*



Figure 28: *Elatostema rugosum*

Egmont National Park 23rd October

Mount Taranaki is a dormant stratovolcano in the Taranaki region on the west coast of New Zealand's North Island. It is the second highest point in the North Island at 2518 m (after Mount Ruapehu) (Figure 36). The vegetation in the area is really diverse, given the rapid change in altitude and climate. Strong western winds blow in from across the Tasman Sea, annual mean precipitation is high (2000mm) and the air temperature sinks by 0.5 to 0.6°C every 100m of elevation. I knew I would be able to experience a range of habitat and flora by hiking the mountain trails. The lowlands around the park have been cleared for agriculture, above that, up to 1200 m follows dense rainforest vegetation. From between 1200-1500 m grow alpine shrubs and flowers, then beyond, moss and lichen herbfields are all that can survive near the summit (Egmont National Park, 2017).

As I drove up to a hiking spot, my ears popped with the sudden change in altitude. I followed the Veronica Loop, a 3km uphill walk at 1100m altitude. The montane forest was dense with *Podocarpus totara*, *Metrosideros robusta*, *Weinmannia racemosa*, and *Libocedrus bidwillii*.



Figure 30: Mount Taranaki

An interesting shrub with big leathery leaves looked like it could be *Brachyglottis elaeagnifolia* (Figure 38), and I later identified *Dracophyllum filifolium*, an Ericaceae plant with distinct slender, upright leafy branches. Groups of *Cordyline indivisa* (4-5m) bowed over the path at jaunty angles (a more attractive species than *C. australis* in my view) (Figure 37). There was a great deal of *Pseudowintera colorata* (the mountain horopito), its new leaves bright red (Figure 40) (Salmon, 1986).



Figure 32: *Brachyglottis elaeagnifolia*



Figure 31: *Cordyline indivisa*

After that I hiked the Ngatoro Loop track following a dry stream bed. The trees were covered in moss and golden lichen (Figure 39), and native ferns clung to every rock and branch (*Lomaria discolor*, *Blechnum colensoi*, *Blechnum novae-zealandia*, *Cranfillia fluviatilis* and *Asplenium flaccidum*). I was completely alone and it felt like walking through Fangorn Forest.

I had planned to hike higher up the mountain, to view the alpine shrubs at 1500 m, however, I still felt very weak from the COVID infection and as I was travelling alone with no one monitoring my whereabouts, I didn't think it sensible.



Figure 34: *Pseudowintera colorata*



Figure 33: Blue and gold lichen

Paloma Gardens 24th October

A 2.5hr drive down the west coast brought me to Paloma Gardens, outside Whanganui. I met Nicki Higgle, one of the owners, who gave me a history of the place. The garden is protected from extreme weather, receiving 900mm of annual rainfall and is almost frost free. Nicki's husband Clive Higgle began planting trees on their sheep and cattle pasture for some shade. This quickly turned into a lifelong passion for horticulture, particularly palms (Figure 41).

I was told the Norton arboretum was an experiment in what species won't be eaten by sheep and deer. Indeed, the rusted-out metal barrels used as tree guards gave the arboretum a charmingly rustic feel, which belied the treasure of the collection. The valley was steep and access to the trees often challenging, it felt like someone's back yard rather than a public garden which I liked. The older trees were planted in the 1970s, mainly oaks, hollies and magnolias. More recently Clive has focused on Southern Hemisphere conifers and subtropical evergreens. While the trees aren't arranged geographically (something Clive thinks can limit their aesthetic potential), I was delighted to find he had meticulously labelled everything. Some highlights included; *Agathis moorei*, *A. palmerstonii*, *Burchellia bubalina*, *Podocarpus pseudobracteatus*, *Elaeocarpus sphaericus*, *Jubaea chilensis*, *Syncarpia glomulifera*, and *Quercus leucotrichophora*.



Figure 35: Paloma Gardens

The Palm Garden is the longest established area (started in 1982), growing many of the 130 palm species found at Paloma. Plants like orchids, aloes, bromeliads, alocasia and bamboo give it a truly exotic feel. A glasshouse held some impressive arid plants - *Stephanotis floribunda*, *Cycas peckinattia*, *Zamia furfuracea*, and *Macrozamia macdonnellii* (Figure 42).



Figure 36: *Macrozamia macdonnellii*

Le Jardin Exotique was spectacular; immense stone steps led me down an avenue of *Washingtonia* palms, in deep beds of *Arthropodium cirratum* (Figure 44). At the bottom of the hill was a large man-made pond, to the left (on the sunny side) were terraces of xerophytic cycads, cacti and succulents. On the right, was a subtropical jungle and bamboo forest. I enjoyed the silvery new leaves on a large *Oldenburgia grandis*. Blue swathes of *Agave parryi*, and bulk planting of *Aloe polyphylla* had me doubting I was still in New Zealand; the whole garden was pure theatre (Figure 43).



Figure 38: View down to Le Jardin Exotique



Figure 37: Steps up through the dry beds

Ōtari-Wilton's Bush 26th October

Ōtari Native Botanic Garden (5 hectares) holds the single largest collection of New Zealand native species (1200 native species, hybrids and cultivars). It sits within Wilton's Bush, 100 hectares of ancient and regenerating forest of podocarp species and *Metrosideros robusta* (Figure 45). Only 1% of Wellington's ancient native forest remains, and 90% of that is at Ōtari (Ireland, 2022, pers. comm.). I met Team Leader Megan Ireland, an expat from the UK, who has worked at Ōtari for 5 years. I discovered she did the Tresco Scholarship, and we discovered many mutual acquaintances (how small the horticulture industry is!)

Ōtari has nine staff; five horticulturalists, one manager, a records officer and three scientists working in the lab. They have records for every plant in their collection, some dating back to 1906. Megan showed me the nursery where they raise wild-collected seed and vegetative material, either to remain in the garden for conservation purposes, or to be used in various plant recovery programmes, both regionally and nationally.

On site is the Ōtari Plant Conservation Laboratory where research into the propagation and storage of New Zealand's threatened plants is done. Options for long-term storage include conventional seed banking (storage at -18°C), cryopreservation (storage at -196°C in liquid nitrogen) and tissue culture (plant tissue in sterile conditions). The conservation work is done in partnership with the Department of Conservation, Victoria University Wellington, The New Zealand Institute of Plant & Food Research Limited and The Museum of New Zealand Te Papa Tongarewa (Ōtari-Wilton's Bush, 2021). The team recently realised that kauri seed isn't as easy to bank as they had previously believed – a batch sent to Kew was found to no longer be viable (Ireland, 2022, pers. comm.).

Staff also work to assess threat levels to native plants, and have put together a current list. Megan estimates there are about 20-30 endangered plant species at Ōtari being conserved. She showed me 23 cuttings of *Brachyglottis pentacopa* recently collected in the wild. These will eventually be cross pollinated and bred to bulk up the numbers. *Metrosideros bartlettii* is a white-flowering tree rātā with a very small native population. In 2019, Ōtari's 25-year-old specimen flowered for the first time. Its pollen was flown all around NZ to help with conservation efforts. Coincidentally, Dunedin's own *M. bartlettii* flowered that year too. Megan wasn't sure whether their specimen had never flowered before due to juvenility or whether it was environmental pressures.



Figure 39: Ōtari-Wilton's Bush with *Metrosideros carminia* in the foreground

In the wellington area, there's an average precipitation of 1240mm, with 15 ground frosts per year. Average daily temperatures range between 8-20 °C, with little variation between seasons. Ōtari's forests have created a microclimate that tends to be cooler and damper than in the city.

Like much of NZ, the area was originally logged and cleared for agriculture. Then it was planted up, (similarly to Wellington Botanic Garden) with trees being trialled for forestry potential. They have a small remaining stand of kauri trees within the reserve which are not close to any tracks, making them less likely to contract dieback from human traffic. Myrtle rust is a big concern there. Megan has found rust on one tree in the reserve and one plant in the nursery. They use a fungicide to prevent further spread. Ōtari works with the nearby 225-hectare ecosanctuary 'Zealandia', a conservation project that has reintroduced 18 species of native wildlife back into the area. In 2020, they launched a project to reintroduce *Dactylanthus taylorii*, the only fully parasitic flowering plant endemic to New Zealand. Its numbers are thought to be in decline. Teams from both organisations collected seed from Pureora Forest Park, to germinate and reintroduce to their respective reserves. *Dactylanthus taylorii* is pollinated by the short-tailed bat, a relationship Zealandia has been able to promote through its own education programme (Zealandia, 2020).

Megan showed me their collection of *Celmisia* species, most of which are endemic to New Zealand. I learned that *Celmisia* hybridize readily, and so keeping a collection straight is a challenge (Caldwell, 2022,

pers. comm.). Ōtari isn't botanically laid out, instead plants are grouped according to ecosystem- i.e., Wellington coastal landscape, beech forest, offshore islands (Figure 46). I liked this approach; it was more helpful to see the native plants within their communities and was aesthetically pleasing. It reminded me of the large beds outside the Millennium Seed Bank, Wakehurst which showcase British native landscapes such as 'chalk grassland' 'shingle' and 'wet meadow'.



Figure 40: Grass and sedge garden

Megan also attended the 7th Global Botanic Gardens Congress; '*Influence and Action: Botanic Gardens as Agents of Change*' in Melbourne, Australia. She said that climate change in the Wellington area is projected for wetter winters and dryer summers (not dissimilar to the West Country). An app for botanic gardens was proposed at the congress which Megan thought sounded useful; the user could map their geographic location and see which plants were likely to survive the climate conditions of that area over time (I could find no other reference to this app). Megan recommended another app – iNaturalist, for plant identification based on location.

Pennantia baylissiana on site has hybridised with the local *P. corymbosa*, resulting in a tree similar to *corymbosa* but with much larger leaves (6-8cm long). Megan recommended trying a wider range of *Metrosideros* species on mainland Cornwall, as well as *Tecomanthe speciosa* and the king fern *Ptisana salicina* (Figure 48). The Alpine Rock Garden featured native plants which grow in exposed mountain environments. I spotted the small emerging leaves of *Ranunculus lyallii*, the largest species in the genus growing over one meter in height. Megan was having trouble getting their collection to flower, until someone recommended putting ice onto the plant, which proved to work.



Figure 41: *Ptisana salicina*

Wellington Botanic Garden 27th October

Walking from my accommodation up to Wellington Botanic Garden, I was struck by how hilly Wellington is. I noticed street trees of *Nematolepis squamea* in flower (endemic to Australia), and attractive urban greening using *Pseudopanax crassifolius*, underplanted with a blue carpet of *Pimelea prostrata*. Wellington Botanic Garden was established in 1868, before that, the area was covered in dense podocarp forest. Today its dominated by enormous *Pinus radiata*, remnants of trees planted in the early 1900s as part of a programme to trial forestry trees in New Zealand (Wellington City Council, 2022). There was a very large *Metrosideros excelsa* near the Founders Entrance. The labels didn't have accession numbers so I couldn't date the tree unfortunately. Nearby was a *Vitex lucens* (Puriri) so large I couldn't see it's flowers in the canopy.

The different areas of the botanic garden were clearly marked by the change in planting, I enjoyed the rainforest experience of walking through the Fernery, with large *Cyathea* spp. towering overhead (Figure 51), and the dry, rocky terraces of the Cacti and succulent collection. At the bottom of the garden, planted along the streamside was the threatened plant; *Colensoa physaloides* (Koru), a fleshy, herbaceous shrub with bright, glossy leaves and purple tubular flowers which prefers damp, semi-shaded situations (Figure 49). Its commonly referred to as the New Zealand Hydrangea, although it's in Campanulaceae. Other natives planted along the stream were *Cortaderia richardii* (a very elegant pampas grass), *Leptospermum scoparium*, and *Carex secta*.



Figure 42: *Colensoa physaloides* in fruit



Figure 43: *Pyrrosia elaeagnifolia*.

One gardener I spoke to mentioned that Wellington has had a lot of problems this past season. It's been a very wet winter with significant winds, they have lost a lot of trees. I noticed this with roped off areas in the process of clearance. When I asked whether climate change was a concern for the staff, he did confirm that more intense weather events posed a significant risk, especially of landslides given the topography of the garden. Another problem that was mentioned was the Kākā parrots (*Nestor meridionalis septentrionalis*), which forage for sap by removing bark from trees, and generally cause destruction within the garden. These birds are endangered, and after being reintroduced to the region 10 years ago, they are making a recovery.

A staff member was able to help me identify an epiphytic fern I had been seeing frequently during my travels - *Pyrrosia elaeagnifolia* (Figure 50). Flowering impressively in several areas of the garden was *Ranunculus cortusifolius* (the Azores buttercup), a tender, clump-forming, perennial which grows up to 1.2m. It seems to behave in New Zealand more like a biennial, seeding freely. *Scandia rosifolia* was an attractive perennial herb I spotted in several gardens across New Zealand, with glossy dark green, divided leaves and numerous white umbels (Brickell, 2011).



Figure 44: The Fernery

On the drive from the Ferry terminal on South Island up to Nelson, I stopped at Pelorous Bridge scenic reserve to stretch my legs (Figure 53). There were some impressive tree ferns and the ground was dense with ferns – colonies of *Lomaria discolor* and in between, the spidery fronds of *Lycopodium volubile* (Figure 52). Saplings of *Nothofagus menziesii* were on the forest floor (silver beech). *Coriaria sarmentosa* was growing in open ground by the river.



Figure 46: Native bush



Figure 45: *Lomaria discolor* and *Lycopodium volubile*

On the first rainy day I'd had since I arrived in the country, I drove an hour up the coast to the village of Mārahau, and the start of Abel Tasman National Park. Its flora is largely made up of native New Zealand beech forest; black beech (*Nothofagus solandri*), hard beech (*Fuscospora truncata*), silver beech (*Nothofagus menziesii*), kahikatea (*Darcycarpus dacrydiodes*), northern rata (*Metrosideros robusta*), pohutukawa (*Metrosideros excelsa*) and titoki (*Alectryon excelsus*) (Abel Tasman, 2022).

I set off on the coastal track, documenting the plants I saw on the way, including *Pseudopanax arboreus*, *Dodonaea viscosa*, *Coprosma grandiflora*, *Schefflera digitata*, *Myoporum laetum* and *Meliclytus ramiflorus* flowering on the stem. The track was rough and narrow, cut into the edge of the coast, this allowed me to observe the crowns of mature plants close up, including the beautiful silvery blue fronds of *Cyathea dealbata*. I was delighted to finally see some kamahi in flower (*Weinmannia racemosa*), the creamy-pink coloured racemes glowing like wands. Kamahi has been grown in UK gardens, but seems too tender to establish well (Trees and Shrubs Online, 2022). I was interested to see a black fungal coating over two small trees (Figure 54). I later found out that sooty mould is common in native beech forests.

Ascomycete fungi grow on the honeydew deposited by a sap-sucking scale insect. Large populations of wasps feeding on the honeydew can be an issue for tourists (Kiwicare, 2022).



Figure 48: *Weinmannia racemosa*



Figure 47: Sooty mould

The following day I walked some tracks on the west side of the National Park. I drove high up towards the Riuwaka Resurgence, a wahi tapu (a sacred place) in Māori culture. The Riuwaka river emerges here in a deep pool from below Takaka Hill. In 1963 divers discovered the subterranean source of the Riuwaka river, and the network of passages and cracks that have formed in the hill over many years (Nelson Tasman, 2022). I stopped at Hawkes Lookout, to appreciate the dramatic rock formations and sink holes unique to the karst landscape of Takaka Hill.

Paripuma Garden 31st October

Paripuma Garden is on the east coast, outside of Blenheim. The long dirt track out was incredibly rough and for the hundredth time this trip, I feared for my little hire car. This 20-year-old garden was developed from a barren, windswept beachfront with striking vistas across Cloudy Bay. Owner Rosa Davison showed me photographs of the site throughout its development, and explained that *Myoporum laetum* was the first plant to go in, with 2000 root trainers planted in the first year, these fast-growing, evergreen shrubs have since grown to 10m, and are the backbone structure of the garden (Figure 58). Rosa said in the early years (before the vegetation offered wind protection, you would see bits of *Myoporum* blowing across the garden like tumbleweeds (Davison, 2022, pers. comm.).

The garden covers 4ha, the house facing north-east, with the bluff to the left, a view that has over time been obscured by trees which they intend to open up again. The lawn slopes away from the patio down to the stony beach (Figure 56). This main avenue is perfectly straight, intersected with horizontal lines, which then meander softly, opening up into little circular glades. I was struck by the combination of vast rigid formality and small, curving lines. Paripuma is known to marry '*formal European design with New Zealand natives*' (Hickman, 2012).

Rosa understood her garden would be limited by what could grow under the challenging coastal conditions. She decided to grow native plants in a formal style, a novel concept back then. The main avenue has semi-symmetrical planting on either side. The rounded forms of clipped shrubs were contrasted by the strappy leaves of *Phormium* and *Astelia* cultivars, and by the vertical stems of *Cordyline Australis*, *Meryta sinclairii* and *Pseudopanax crassifolius*. Block plantings of *Anemanthele lessoniana*, *Phormium*, *Carex spp.* made good understory planting for the larger shrubs. The older Myoporum had clean stems up to 3m, creating semi-shaded beds, and clipped hedges of bright green coprosma leant definition. A terrace bed near the house was planted with *Heliohebe hulkeana*, flowering a deep lilac colour. Despite being very sandy in areas of the garden, the soil is predominantly stony clay.



Figure 49: Paripuma vista

The colour pallet was simple – greens, greys, browns, ochres and rusty-coloured plants. Had I come in the summer, the *Metrosideros* and the *Veronicas* would have been in flower, however it was informative to see the ‘bare bones’ of the garden, helping me to appreciate good structure in a garden, and what can be achieved with form and texture alone. The garden felt very Mediterranean in places.

The close proximity of the beach was hidden by the planting, only when I reached the very end of the lawn did it give way immediately to pebbles, beyond the last few bushes I found a stunning view of the sea. The vegetation does an excellent job as screening and wind protection. On the rocky beach, yellow *Lupinus* were in flower, looking heavenly against the blue water.

Two large *Tecomanthe speciosa* were growing on either side of the house, the one over the entrance door, was planted in 2000, the other in 2008. The older one was looking stressed; Rosa believes because it’s in the sun, as *Tecomanthe* are a bit like *Clematis*, preferring to have their feet in the shade. I’ve seen this native vine several times during my visit but this was the first time I could appreciate the flowers (Figure 59).



Figure 50: Seating area near the house



Figure 52: *Tecomanthe speciosa* flowers



Figure 51: *Myoporum laetum* flowers

Christchurch Botanic Garden 1st November

I drove 2.5 hours south along the coastal road, enjoying the changing scenery, *Pachystegia insignis* was sprouting out of the cliff in its native habitat. *Cortaderia sellowiana* was growing in long banks by the roadside with an endless parade of *Cordyline australis* in full flower.

Christchurch Botanic Garden is bordered on all sides by the Ōtākaro river, its banks planted with trees and native grasses (Figure 60). The newer planting around the visitor centre was native; *Arthropodium cirratum*, *Carex testacea*, *C. comans*, *Chionochloa flavecans*, the divaricating form of *Coprosma virescens*. *Myosotidium hortensia* (the Chatham Island forget-me-not) was in full flower in one bed.



Figure 53: The Ōtākaro river

I wondered around the garden for hours, particularly enjoying the Temperate Asian Collection, The Rhododendrons hadn't gone over yet like they had in the North Island. Christchurch reminded me of Wisley in its landscaping and atmosphere, and the high volume of people enjoying the space for free was pleasing to see. The Rose Garden was immaculate, its aim is to show the best modern roses for the local climate. New cultivars are trialled for 3-6 years before being admitted into the permanent collection (Christchurch City Council, 2022). There were some impressively large trees – *Cupressus macrocarpa*, *Araucaria bidwillii*, *Arbutus unedo*, *Eucalyptus macarthurii* and a 100-year-old *E. delegatensis* with an attractive twisted trunk (due to wind loading) 3.7m in diameter.

I was most impressed with their New Zealand Native Garden, like Ōtari, the plants were grouped according to their original ecosystems; including rocky alpine landscaping, bush, swamp and wetland areas, as well as an extensive *Veronica* collection. There were lots of interesting plants I had not seen before; *Anisotome aromatica*, *Helichrysum intermedium* (very attractive foliage), *Astelia petriei*, *Lobelia angulata*, *Celmisia densiflora*, *Melicytus alpinus*, and *Veronica ochracea*.

The ornamental use of native plants at Christchurch was well done; the big dark foliage of *Brachyglottis repanda* 'Purpurea', against the small divaricating leaves of *Muehlenbeckia astonii* and silvery *Brachyglottis* 'Sunshine' looked great, surrounded by a dainty white spray of *Libertia ixioides* flowers (Figure 62). In another bed *Corynocarpus laevigatus* 'Variegatus', *Astelia chathamica*, *Corokia buddleioides*, *Veronica pinguifolia* and the blush tones of *Pseudowintera colorata* was a riot of colour and contrasting form (Figure 61) (Salmon, 1986) (Eadie, 2014).



Figure 55: *Brachyglottis repanda* 'Purpurea' and *B. 'Sunshine'*



Figure 54: Colour and form

Riccarton Bush/ Christchurch urban planting 2nd November

As I walked through the city, I realised that 80% of the new soft landscaping was native species. I had seen similar plant selection in Wellington and Auckland and later found out that there is a growing trend for New Zealand natives in garden design, often encouraged by restoration projects in areas of ecological significance (Wellington City Council, 2022). Anecdotally, it is younger horticulturists and designers who favour native species. With urban planting and restoration work, it's increasingly important that the plants are grown from seed sourced very locally, with botanists and ecologists consulting on large-scale projects (Abernethy, 2022, pers. comm.)

Regularly selected plants include; *Griselinia*, *Corokia* and *Pittosporum spp.* for hedging, and block planting of dwarf Phormiums and mountain flax (*P. cookianum*) (Figure 63). *Libertia spp.* and *Veronica* for flowers, *Coprosma spp.*, *Pseudowintera* and *Dodonaea viscosa* for shrubs. *Pseudopanax crassifolius*, *Meryta sinclairii*, *Metrosideros spp.*, *Sophora microphylla*, and *Alectryon excelsus* are often used as street trees. *Muehlenbeckia axillaris*, *Blechnum penna-marina*, *Fuchsia procumbens* and *Acaena novae-zelandiae* are good for ground cover (Spellerberg, Frey, & Maillard, 2011) (Gisbourne District Council, 2018). Riccarton Bush is the only remnant of Kahikatea Forest (*Dacrycarpus dacrydioides*) left in Christchurch, 3km from the city centre. It was fascinating to walk under these ancient trees and imagine how Christchurch would have looked prior to settlement.



Figure 56: Urban planting

Broadfield New Zealand Landscape Garden 3rd November

David Hobbs, the owner of Broadfield gave me a tour of his incredible garden. He works there full time with another gardener and he is a consummate plantsman. David chose the site, 30 minutes south-west of Christchurch, for its fertile soils (Templeton silt loam). The garden showcases natives as well New Zealand bred plants such as peonies, Azaleas, Cornus, and lilies. The garden was immaculately kept and formal in style, earning its 6-star rating from the New Zealand Gardens Trust (Figure 64). The perimeter is enclosed by large *Podocarpus totara* and *P. cunninghamii* hedges 3m high. They are 20 years old and cut once a year in March. There is 1.5km of hedging at Broadfield, to shelter the windy site, however the hedges also allow for transitions from one garden style to another. *Corokia* 'Frosted Chocolate' was recommended for hedging.

David only has flax cultivars for about 4 years, before he digs them out. They require a lot of 'grooming' to remove dead and damaged leaves. Also, coloured cultivars have a tendency to revert back to green. *Anemanthele lessoniana* is considered somewhat of a weed in New Zealand, ironic given how popular it is in UK garden design. David finds they are only good for about 4 years before they look tired, and Veronicas are also dug up and composted when they get too woody (Hobbs, 2022, pers. comm.). He likes plants that readily regenerate –*Olearia* and *Rhododendrons* that get too big are cut back hard. In the beginning, *Pittosporum* was planted amongst the beds to act as quick growing shelter, now they are being removed. *Agathis australis* planted in 2011 was already 9m high, growing $\frac{3}{4}$ m per year. 100 kauris were planted in the garden which now need thinning. The new foliage gets frosted, but the higher the tree gets off the ground, the less the frost effects it. *Myrsine australis* is more frost tender when young (*pittosporum* isn't at all), however it makes a nicer hedging plant than *pittosporum*, which bares up at the bottom (Hobbs, 2022, pers. comm.).

Some plants I particularly liked included weeping forms of *Fuscospora* and *Chaenomeles* 'Riccartonii', *Pittosporum patulum* (attractive foliage), *Sophora longicarinata* (the smallest leaves of the Sophoras, and

the last one to flower), *Carmichaelia stevensonii*, and *Chionochloa rubra*. David recommended the book 'New Zealand Gardens to Visit' (Barraclough & Nicholas, 2022).



Figure 57: Avenue of *Podocarpus dacrydioides*

Camelia petal blight (*Ciborinia camelliae*) is rife at Broadfield, preventing seed from setting. The disease came to New Zealand in 1995 from Japan via California and has spread through the country by 5km per year. David is steadily reducing the size and number of Camellia plants he has in his collection, as spraying for the disease isn't economically or practically viable (Figure 66) (Buczacki & Harris, 2014).

David said that importing new plant species/cultivars into the country is now very difficult due to biosecurity. There is a national plant database of approved species only (Environmental Protection Authority, 2022). This is an issue raised by several of my contacts in New Zealand.



Figure 58: *Camelia* petal blight



Figure 59: Summer House

Fishermans Bay Garden 4th November

‘That’s what New Zealand is...big blobs of green’ – Jill Simpson

Fishermans Bay Garden is located on the edge of the Banks Peninsula, part of a 320ha farm. Only in the past 15 years has owner Jill (a trained landscape designer) taken a step back from farming to focus on developing the garden.

It originally started as a purely native species garden, with seed sourced from the Peninsula. However, over the years Jill found she missed using colour and has moved towards a New Perennial style of planting, inspired by Piet Oudolf and Cassian Schmidt, using New Zealand natives as the structure. She likes how quickly perennials grow and flower, whereas shrubs are a slower investment. Colourful perennials like *Osteospermum* flower year-round in the beds below the house. Framing the view of the sea, and adding vertical form to the design are two flowering *Cordyline australis*. Jill could have used any slender tree but for her, the cabbage trees make it a New Zealand garden (Figure 67).



Figure 60: View from the house

The soil at Fisherman’s Bay is very fertile, with top soil 30-60cm deep in places. The difficulty is that it isn’t well drained, there is a natural spring on the site, and run-off from the hill channels down. Water ‘seeps’ up in areas after heavy rainfall, which has rotted off some Veronicas.

Jill and Richard talked a lot about the huge rains they had in the past few winters, it caused land slips which cut them off for 5 days. Helicopters dropped generators to people trapped on the peninsula. Lots of gravel from the road washed through the garden. They now factor in landscaping repairs from storm damage as a yearly horticultural activity, whereas they never had to before. Jill is increasingly selecting plants based on their tolerance for both very wet and very dry conditions.

Like David Hobbs, Jill lamented how difficult biosecurity restrictions has made accessing new plants. She is limited to 1-2 non-native grass species, something Jill feels acutely given the ‘New Perennial’ style of garden she is trying to create. She sources nearly all her plants online, through ‘Trade Me’, an Ebay equivalent. Jill is very connected to other international designers, and uses online platforms like Instagram

not only for inspiration but to network. For a horticulturalist as remote as she is, this is essential. The garden often gets 5-20 visitors each day in the summer, and they have noticed more young people visiting (20–30-year-olds). She is getting a German student for 2 months work experience this summer, from Hermannshof Garden, Weinheim.

Jill explained that *Anemanthele lessoniana* should be grown in full sun to get the mauve flowers, which contradicts how it's often described in the UK as a good grass for dry shade. *Phormium tenax* was planted as an effective screen and cut hard away from the path, creating a tunnel-like effect. I learned that *Arthropodium cirratum* doesn't mind the sun, is very drought tolerant and copes with deep shade, however it is frost tender, so many people don't plant it in sunny areas (Simpson, 2022, pers. comm.).



Figure 61: Fishermans Bay Garden

Hinewai Reserve 4th November

Hinewai is a 1250-hectare ecological restoration project on Banks Peninsula, adopting a minimal interference approach to regenerating native flora and fauna. The forest is mostly *Nothofagus fusca*, with some ancient podocarps (*Podocarpus totara*, *Dacrycarpus dacrydioides*). Extensive areas of gorse, broom, bracken and native shrubs serve as excellent nurse canopies for the native saplings (Figure 70), while tussocks like *Chionochloa conspicua* fringe the road boundaries. It was fascinating to experience an area across many stages of regeneration (Figure 69).



Figure 63: *Discaria toumatou*



Figure 62: Hinewai Reserve

Dunedin Rhododendron Group 5th November

While travelling down the east coast I stopped in to visit Dylan Norfield, Collections Supervisor at Dunedin Botanic Garden at his home in Waitati. This was a chance to see his private garden and meet the Dunedin Rhododendron Group who were visiting. Dylan emigrated from the UK 16 years ago, he previously owned Norfield's nursery and this was reflected in some of the plants thriving in his garden. Large Acers of many colours dominated the front lawn, the rest of the collection was a chocolate box of woody specimens. The sheltered site faces north-west and rarely gets frost (Norfield, 2022, pers. comm.).

Kaka birds were ring barking the trees, Dylan found applying neem granules around the base of the tree was an effective deterrent. The neem is taken up in the tree's vascular tissue, and the birds dislike the taste when they chew on the stem. I spoke to a young horticulturalist doing private work in Dunedin, who said that interest in gardening (from young people) was increased post-pandemic, similar to the UK. Dylan had an *Aciphylla dieffenbachia* in flower, other plants that piqued my interest included *Gaultheria shallon*, *Araucaria hunsteinii*, *Azara petiolaris* and a flowering *Dipelta floribunda* (Figure 71).



Figure 64: *Dipelta floribunda*



Figure 65: *Aciphylla dieffenbachia*

Larnach Castle 6th November

I was worried that visiting Larnach off-season meant it wouldn't be looking its best, however, I was soon delighted I made the journey. There were many interesting plants in the garden and the colour combinations were quite masterful; deep blue *Lithodora diffusa* flowers against the glaucous succulent leaves of *Senecio mandraliscae* and the pale yellow of native *Clematis paniculata*. Bright yellow *Euphorbia polychroma* planted next to a dusty rose-coloured *Erysimum cheiri*. There was a white selection of *Telopea speciosissima*, as well as beautiful *Clianthus puniceus* 'Alba' (I prefer the white form) (Spellerberg, Frey, & Maillard, 2011). I finally got to see *Pachystegia insignis* in flower!

I identified a small *Macrolearia semidentata* (the 'swamp aster'). Its endemic to the Chatham Islands only, inhabiting restiad bogs. As native shrubs usually flower white or yellow, the lilac daisy flowers of this plant were quite startling. A large *Xeronema callistemon* was flowering heavily in a terracotta pot, they naturally grow in cliff faces, so prefer very free draining conditions and confined roots. It is also frost tender, so growing this in Cornwall will require careful consideration (Abernethy, 2022, pers. comm.).



Figure 66: Larnach Castle

Dunedin Botanic Garden 7th November

I met Robyn Abernathy, Curator for the Rock, Water and Alpine collections, she gave me a 3-hour tour of the site and introduced me to the staff. Dunedin was the first botanic garden in New Zealand (1863). It's sited on a north-west slope, the garden dissected by the Lindsay Creek, with the 'Lower Garden' on flat ground, and the 'Upper' Garden' on the hillside above. Dunedin is 30.4 hectares, with 14 gardeners on the ground (7 collection curators and 7 apprentices) and a handful of volunteers. Two mornings a week in the winter, the whole team work in the bush area, taking out self-seeded sycamores and other weeds.

Robyn emphasized how young the country was by European standards. Most of their big trees only date from the early 1900s, and its unclear how long non-native trees will live, especially under the pressure of extreme weather events. Robyn noted that Dunedin winters are cool and dry, whereas Cornwall is cool

and very damp. The equable climate and loess and basalt-derived soils are well suited to growing Rhododendrons, and the collection there is incredible (Figure 74).

Kate Caldwell, the Curator of the Native Plant Collection at Dunedin gave me a tour of her area, which has undergone significant redevelopment. Similar to Auckland Botanic Garden, the view is that beds organised taxonomically by genus are not engaging for the visitors. The emphasis is on ecosystems and plant communities as they exist in the wild. A new raised rockery has just been built to showcase montane plants and a bed displaying tussockland. While the bulk of Kates collection are straight species, the planting around the car park includes cultivars, and really shows what can be achieved aesthetically with this group of plants. Many variegated and purple-foilage plants compliment each other. Kate recommended *Cordyline* 'Karo Kiri', *C.* 'Red Fountain', *Olearia cheesemannii* and *Coprosma* 'Red Lobster', a divaricating shrub. It was good to meet an expert in cultivating natives, Kate is a brilliant resource I can contact in the future.



Figure 67: Rhododendron Dell

Propagation Unit

I was given a tour of the facility by the manager Alice Lloyd-Fitt (Figure 75). The propagation unit was built in 2015, Alice and her team had great input into the design of the facility, using work flow charts to show the local architects how they needed to utilise the building. The unit is open to the public, hosting events, propagation workshops and school groups, so it needed to be safe and accessible to them, without the public interfering with the day-to-day operations of the team. Rainwater is collected from the structure and stored in tanks, with runoff from the nursery also being collected. The water is filtered but at the time the site was built, no one picked up on the need for UV light treatment, so algae growth on the floors and in the pipes is a problem. To retrofit a UV system is financially unviable, so they must flush out the pipes daily. The team propagates for the garden, and does some ex-situ work for the Department of Conservation. They recently worked with the Rotary Club of Dunedin North to germinate Ginkgo seed from the Hiroshima bombing as part of the 'Green Legacy Project'. There are anywhere from 6000-11000 different plant species at the facility at any one time.

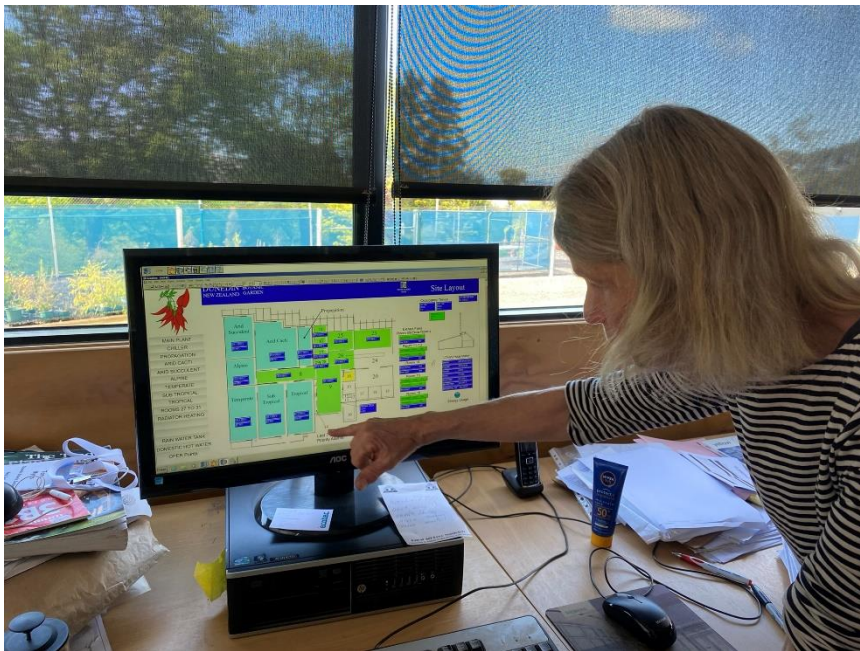


Figure 68: Alice showing me the climate control systems

Otago Central region 8th – 9th November

Otago Central Region is the coldest, driest part of New Zealand. I drove for miles through tussockland of golden *Chionochloa* spp. (Figure 76). This gave way to a rocky landscape covered in a purple haze of naturalised *Thymus vulgaris*. Thyme was introduced to Otago by a French goldminer in the 1860s, it now covers the converging valleys of the Clutha, Manuherikia and Kawarau Rivers, (approximately 2000 ha) (Central Otago, 2022). I spent the last few days of my journey in Queenstown, hiking around Lake Wakatipu, completely stunned by the beauty and diversity of the area.



Figure 69: Tussockland

Problems encountered

Contracting COVID made the first two weeks of my trip particularly challenging. I was able to move my itinerary around so I only missed one scheduled visit, however this left me with no real days off to rest for the rest of my trip and I felt very weak.

On the 20th October the license plate fell off my hire car, the rental company had no spare vehicles to give me. It took many hours to sort, but I was eventually able to get a new registration and plates attached, then re-booked my ferry ticket.

My contact at Christchurch Botanic Garden, Wolfgang Bopp, was unable to meet me. However, making some visits without a guide was interesting, it allowed me to interpret the garden for myself.

It was ambitious to visit so many places in one month, I had planned to visit more over a longer period, but the last-minute nature of the booking coincided with the value of the pound falling, rising inflation and a cost-of-living crisis. I was very concerned I would go over budget, so I streamlined my original itinerary.

Conclusions

I was delighted to realise that the hundreds of hours I spent learning native plants was worth it, I could always identify key species in every location I visited, which helped me botanise the rest. My knowledge allowed for better conversations with local horticulturalists, many of whom were shocked by my level of familiarity. The only drawback was that I only knew the Latin, while the Māori common names were also frequently used. Several gardeners there recommended the apps Google lens and iNaturalist for more geographic specific identification of plants.

I raised exposure of the RHS Bursaries Scheme, the Thistledown Horticultural Bursary and the Great Dixter Charitable Trust's Christopher Lloyd Bursary through my Instagram account using tags such as #RHSBursaries. My account was open to the public and I received a lot of interest from new horticulturalists, getting in touch with their own recommendations. I'm growing an online network of contacts which is invaluable for my career in this day and age.

I've achieved all of the aims I set out at the start of my trip, particularly broadening my knowledge around New Zealand natives; plant characteristics and aesthetic merit, growing conditions, species selection for climate change and biosecurity management. I now have a large archive of photographs and notes to refer to.

I contacted the New Zealand Plant Conservation Network on the suggestion of the RHS Bursaries Committee, which led to a meeting with Megan Ireland at Ōtari Native Botanic Garden. This was one of my favourite experiences. Another query from the committee was how much of our UK garden plants are from New Zealand. It's been very difficult to find this out, a search of the RHS plant finder lists 111 records, not all of which have current suppliers (Royal Horticultural Society, 2022).

With regard to building professional relationships and sharing my experiences; I believe my genuine passion for New Zealand plants shone through and strengthened the relationships I built out there. My quick rapport with Jack Hobbs led to an impromptu guided tour of Ayrilies and a meeting with the owner that was quite special. Many people offered to send me seed, and I had several job offers in New Zealand! I'm particularly glad I met Kate Caldwell, we are now in contact and her experience cultivating native plants will be invaluable. I was able to link Barbara Wheeler to Sheila Das, to discuss an Edibles focussed

UK-visit for the vegetable gardener at Auckland Botanic Garden. I was contacted by an RHS Bridgewater gardener who wanted to be put in touch with several of my contacts for his own trip. I also met up with Harriet Inglis (formerly an RHS Rosemoor student) who is travelling out in December, to share resources. I have contacted my local horticultural college to suggest a presentation of my travels to the students. If I can get the time off, I'd like to visit Great Dixter for one of their 'Friends' days, and share my experiences.

Prior to this, I'd never travelled alone or outside of Europe. The process of planning and executing such a large bursary trip has been significant for my personal and professional development (particularly my confidence). Following my return, I interviewed for and accepted a position at Trewidden Garden in Cornwall. I love the collection and team there, and I'm excited to bring everything I've learned to this role.

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Appendices

Appendix A: Budget

Item	Cost	Company
Flights	£1,371.96	TravelUp
USA ESTA visa	£18.50	US Customs and Border protection
Nzeta visa	£27.50	Nzeta app
Travel insurance	£166.80	Insure with Ease
NZ SIM CARD	£35.42	Vodafone
Car hire and insurance	£1,518.68	Snap Rentals
Petrol	£299.78	
Accommodation (£74.20 average per night)	£2,228.58	Ibis/ Premier inn/ Airbnb
Food/Drink	£418.40	Various
<u>Travel:</u>		
Hoppa bus ticket	£6.50	Heathrow Hoppa bus
Train: Heathrow-Penzance	£49.54	Great Western Railway
Parking	£29.14	
NZ toll roads	£2.40	NZ Transport Agency
Ferry	£106.98	Interislander Ferries
Taxis to/from airport	£51.78	
ATM withdrawal	£32.05	(Dollars to GP pounds)
Gardens admissions	£66	
Souvenirs	£56.80	
Total	£6,486.81	
Funding		
RHS Roper Fund	£2,505	(£250 reimbursed following Christopher Lloyd Bursary award)
Thistledown Horticultural Bursary	£2,500	
Christopher Lloyd Bursary	£250	
Personal contribution	£1,231.81	

Signed:



Date: 30/12/2022

Appendix B: Plant List

Genus	Species	Family	Location	Notes
Trees				
Dacrydium	cupressinum	Podocarpaceae	NZ	Rimu
Phyllocladus	trichomanoides	Podocarpaceae		
Lagarostrobos	colensoi	Podocarpaceae		
Libocedrus	plumosa	Cupressaceae	NZ	Fern-like leaves
Libocedrus	bidwillii	Cupressaceae		
Darcycarpus	dacrydiodes	Podocarpaceae		
Podocarpus	cunninghamii	Podocarpaceae		
Podocarpus	totara	Podocarpaceae	NZ	Great hedging/topiary plant
Podocarpus	acutifolius	Podocarpaceae		
Podocarpus	dacrydioides	Podocarpaceae	Broadfield	
Prumnopitys	taxifolia	Podocarpaceae		
Prumnopitys	ferruginea	Podocarpaceae	Broadfield	
Araucaria	heterophylla	Araucariaceae		
Agathis	australis	Araucariaceae	North Island	
Knightia	excelsa	Proteaceae		
Toronia	toru	Proteaceae		
Agathis	australis	Araucariaceae		
Beilschmiedia	tawa	Lauraceae		
Beilschmiedia	taraire	Lauraceae	DBG	
Elingamita	johnsonii	Primulaceae		
Pennantia	baylisiana	Pennantiaceae		
Pennantia	corymbosa	Pennantiaceae		
Hedycarya	arborea	Monimiaceae		
Elaeocarpus	hookerianus	Elaeocarpaceae		
Elaeocarpus	dentatus	Elaeocarpaceae	DBG	Gorgeous flowers
Metrosideros	bartlettii	Myrtaceae		
Metrosideros	robusta	Myrtaceae		
Metrosideros	excelsa	Myrtaceae		
Entelea	arborescens	Malvaceae	NZ	
Pisonia	brunoniana	Nyctaginaceae		
Dysoxylum	spectabile	Meliaceae		
Sophora	longicarinata	Fabaceae	Broadfield	Smallest leaf/last to flower
Alectryon	excelsus	Sapindaceae		
Alectryon	excelsus subsp. grandis	Sapindaceae	ABG	
Planchonella	costata	Sapotaceae		
Melicytus	lanceolatus	Violaceae		
Melicytus	ramiflorus	Violaceae		
Melicytus	alpinus	Violaceae	CBG	Porcupine bush
Melicytus	obovatus	Violaceae		Round-leaf
Nothofagus	menziesii	Nothofagaceae		
Nothofagus	solandri	Nothofagaceae		

Nothofagus	fusca	Nothofagaceae		
Fuscospora	truncata	Nothofagaceae		
Cordyline	indivisa	Asparagaceae		
Cordyline	australis	Asparagaceae		
Cordyline	australis x obtecta	Asparagaceae	DBG	Attractive cross
Cordyline	'Red Fountain'	Asparagaceae		
Cordyline	'Karo Kiri'	Asparagaceae	DBG	Compact habit, attractive form
Rhopalostylis	sapida	Arecaceae		
Meryta	sinclairii	Araliaceae	North Island	
Griselinia	littoralis	Griselinaceae		
Griselinia	lucida	Griselinaceae		
Corynocarpus	laevigatus	Corynocarpaceae	NZ	
Ackama	rosifolia	Cunoniaceae	DBG	Flowering tree very attractive
Nestegis	cunninghamii	Oleaceae	DBG	
Fuchsia	excorticata	Onagraceae	NZ	
Shrubs				
Brachyglottis	repanda	Asteraceae	NZ	
Brachyglottis	elaeagnifolia	Asteraceae		
Brachyglottis	compacta	Asteraceae		
Brachyglottis	monroi	Asteraceae	DBG	
Brachyglottis	laxifolia	Asteraceae		
Brachyglottis	huntii	Asteraceae		
Brachyglottis	'Leith Gold'	Asteraceae	DBG	Recommended
Dracophyllum	filifolium	Ericaceae		
Dracophyllum	arboretum	Ericaceae	Christchurch	
Dracophyllum	traversii	Ericaceae	DBG	Slow growing/can't reshoot once cut back
Dracophyllum	sinclairii	Ericaceae		
Dracophyllum	longifolium	Ericaceae		
Dracophyllum	latifolium	Ericaceae		
Dracophyllum	oliverii	Ericaceae		
Schefflera	digitata	Araliaceae		
Piper	excelsum	Piperaceae		
Piper	excelsum 'Variegatum'	Piperaceae		Lightens a dark corner
Rhabdothamnus	solandri	Gesneriaceae		
Kunzea	ericoides	Myrtaceae		
Kunzea	sinclairii	Myrtaceae	ABG	
Kunzea	tenuicaulis	Myrtaceae	DBG	
Leptospermum	scoparium	NZ		
Corokia	cotoneaster	Argophyllaceae	NZ	Good hedging plant
Corokia	buddleioides	Argophyllaceae		Very attractive
Pachystegia	insignis	Asteraceae		
Pachystegia	rufa	Asteraceae	DBG	Ochre coloured leaf
Halocarpus	biformis	Podocarpaceae		
Halocarpus	bidwillii	Podocarpaceae	DBG	Big attractive shrub

Weinmannia	racemosa	Cunoniaceae		
Weinmannia	sylvicola	Cunoniaceae		
Myrsine	aquilonia	Primulaceae	Ferglen	
Myrsine	australis	Primulaceae	NZ	Better hedging plant than Pittosp.
Myrsine	chathamica	Primulaceae	DBG	
Myrsine	divaricata	Primulaceae	Paripuma	
Coprosma	areolata	Rubiaceae		
Coprosma	rhamnoides	Rubiaceae		
Coprosma	crassifolia	Rubiaceae		
Coprosma	repens	Rubiaceae		Common
Coprosma	neglecta	Rubiaceae		
Coprosma	acerosa	Rubiaceae	Sand dunes	
Coprosma	virescens	Rubiaceae	WBG	twiggy, evergreen shrub to 3m x 1m
Coprosma	robusta	Rubiaceae	Abel Tasman	
Coprosma	rigida	Rubiaceae	CBG	Low growing shrub
Dodonaea	viscosa	Sapindaceae		
Pseudowintera	colorata	Winteraceae	Mt Taranaki/NZ	
Veronica	cupressoides	Plantaginaceae		
Veronica	bishopiana	Plantaginaceae	ABG	
Veronica	tetragona	Plantaginaceae	DBG	Scale-like leaves
Veronica	albicans	Plantaginaceae		
Veronica	obtusata	Plantaginaceae	ABG/ CBG	
Veronica	macrocarpa var. latisepala	Plantaginaceae	ABG	
Veronica	macrocarpa	Plantaginaceae		
Veronica	adamsii	Plantaginaceae		
Veronica	pimeleoides var. glauca-caerulea	Plantaginaceae		Low growing blue-green shrub
Veronica	perbella	Plantaginaceae		
Veronica	gibbsii	Plantaginaceae	DBG	
Veronica	glaucohylla	Plantaginaceae	DBG	Large specimen 2.5m tall
Veronica	pinguifolia	Plantaginaceae		
Veronica	speciosa	Plantaginaceae		Big leaf
Veronica	rigidula var. rigidula	Plantaginaceae	Otari	
Veronica	baylyi	Plantaginaceae	CBG	
Veronica	salicornioides	Plantaginaceae		
Veronica	ochracea	Plantaginaceae	CBG	
Veronica	'Hagley Park'	Plantaginaceae		Very attractive flower
Veronica	'Karo Golden Esk'	Plantaginaceae		
Veronica	'Mount Nimrod'	Plantaginaceae		
Heliohebe	hulkeana	Plantaginaceae	Paripuma	
Alseuosmia	macrophylla	Alseuosmiaceae	Otari	
Alseuosmia	quercifolia	Alseuosmiaceae	DBG	Attractive golden new foliage
Pomaderris	phyllicifolia	Rhamnaceae		
Pomaderris	rugosa	Rhamnaceae	ABG	
Pomaderris	paniculosa subsp. novae-zelandiae	Rhamnaceae		

Geniostoma	ligustrifolium var. ligustrifolium	Loganiaceae		
Myoporum	aff. insulare	Scrophulariaceae	Paripuma	
Myoporum	laetum	Scrophulariaceae	North Island	
Olearia	cheesemani	Asteraceae		
Olearia	fimbriata	Asteraceae		
Olearia	angulata	Asteraceae	ABG	
Olearia	albida	Asteraceae	Broadfield	White abaxial
Olearia	bullata	Asteraceae		
Olearia	illicifolia	Asteraceae		Attractive foliage
Olearia	fragrantissima	Asteraceae	DBG	
Olearia	panucilata	Asteraceae		
Olearia	coriacea 'Lochiel Station'	Asteraceae	DBG	
Olearia	x macrodonta	Asteraceae	Otari	
Olearia	x haastii	Asteraceae	DBG	
Pittosporum	fairchildii	Pittosporaceae	ABG	
Pittosporum	kirkii	Pittosporaceae		
Pittosporum	cornifolium	Pittosporaceae	Otari	Nice foliage
Pittosporum	crassifolium	Pittosporaceae	Paripuma	
Pittosporum	patulum	Pittosporaceae	Broadfield	Very attractive foliage
Pittosporum	obcordata	Pittosporaceae		Little yellow flowers
Sophora	prostrata	Fabaceae	South Island	Divaricating
Clianthus	puniceus	Fabaceae	NZ	
Clianthus	puniceus var. alba	Fabaceae	DBG	Comes true from seed
Clianthus	maxima	Fabaceae	CBG	
Lophomyrtus	obcordata	Myrtaceae		
Discaria	toumatou	Rhamnaceae	Hinewai/ Otari	
Carmichaelia	appressa	Fabaceae		
Carmichaelia	glabrescens	Fabaceae	Broadfield	Attractive pink flowers
Carmichaelia	complexa	Fabaceae		
Carmichaelia	australis	Fabaceae	ABG	
Carmichaelia	stevensonii	Fabaceae	Broadfield	Attractive broom
Leucopogon	fasciculatus	Epacridaceae	ABG	
Streblus	smithii	Moraceae		
Streblus	banksii	Moraceae	Paripuma	
Leptecophylla	robusta	Ericaceae		
Coriaria	sarmentosa	Coriariaceae	Abel Tasman	
Coriaria	arborea	Coriariaceae	Abel Tasman	
Plagianthus	divaricatus	Malvaceae		
Plagianthus	regius	Malvaceae	Paripuma	Smaller juvenile leaves
Pseudopanax	arboreus	Araliaceae		
Pseudopanax	crassifolius	Araliaceae	NZ	
Pseudopanax	discolor	Araliaceae	CBG	
Aristotelia	serrata	Elaeocarpaceae		Wineberry
Schefflera	digitata	Araliaceae		
Lepidothamnus	laxifolius 'Green Cascade'	Podocarpaceae	CBG	High altitude bog/scrub

Teucrium	parvifolium	Lamiaceae	CBG	Branched, small leaves, white flowers
Carpodetus	serratus	Rousseaceae		Marbled, serrated leaves
Chaenomeles	'Riccartonii'	Rosaceae	Broadfield	Weeping form
Muehlenbeckia	ephedrioides	Polygonaceae		Leafless - interesting form
Muehlenbeckia	astonii	Polygonaceae	City urban planting	Popular landscaping shrub- small leaf
Macrolea	semidentata	Asteraceae	Larnach Castle	Purple flowering 'swamp aster'
Gaultheria	macrostigma	Ericaceae		Low-growing, sprawling, tangled
Gaultheria	rupestris	Ericaceae		
Pimelea	longifolia	Thymelaeaceae		Nice shrub form
<u>Climbers</u>				
Tecomanthe	speciosa	Bignoniaceae		
Freycinetia	banksii	Pandanaceae		
Metrosideros	perforata	Myrtaceae		
Metrosideros	carminia	Myrtaceae		
Meuhlenbeckia	complexa	Polygonaceae		responds well to clipping
Meuhlenbeckia	axillaris x complexa	Polygonaceae		
Rubus	squarrosus	Rosaceae	ABG	
Rubus	cissoides	Rosaceae		
Clematis	paniculata	Ranunculaceae		
Clematis	foetida	Ranunculaceae	Larnach Castle	
Clematis	forsterii	Ranunculaceae	DBG	Very similar to foetida
Clematis	afoliata	Ranunculaceae	Broadfield	Wiry, leafless appearance
Clematis	marmoraria x petriei	Ranunculaceae		Scrambling
Parsonsia	capsularis	Apocynaceae		
<u>Ferns</u>				
Lygodium	articulatum	Lygodiaceae	North Island	Forests
Leptopteris	superba	Osmundaceae		
Asplenium	lamprophyllum	Aspleniaceae		
Asplenium	polyodon	Aspleniaceae		
Asplenium	flaccidum	Aspleniaceae		
Asplenium	oblongifolium	Aspleniaceae	Otari	
Sticherus	cunninghamii	Gleicheniaceae		
Ptisana	salicina	Marattiaceae		
Lomaria	discolor	Blechnaceae		
Blechnum	colensoi	Blechnaceae		
Blechnum	penna-marina	Blechnaceae	NZ	Native alpine water fern
Adiantum	cunninghamii	Pteridaceae	DBG	
Polystichum	vestitum	Dryopteridaceae	Otari	
Cranfillia	fluviatilis	Blechnaceae		
Lycopodium	volubile	Lycopodiaceae		
Microsorium	novae-zelandiae	Polypodiaceae		
Microsorium	scandens	Polypodiaceae		
Microsorium	pustulatum subsp. pustulatum	Polypodiaceae		

Microsorium	diversifolium	Polypodiaceae		
Pyrrosia	elaeagnifolia	Polypodiaceae		
Doodia	australis	Blechnaceae	ABG	
Paesia	scaberula	Dennstaedtiaceae	ABG	
Cyathea	dealbata	Cyatheaceae	NZ	
Cyathea	kermadecensis	Cyatheaceae	Otari	
Cyathea	medullaris	Cyatheaceae	NZ	
Cyathea	cunninghamii	Cyatheaceae		
Diplazium	austale	Athyriaceae		
Dicksonia	fibrosa	Dicksoniaceae		
Dicksonia	squarrosa	Dicksoniaceae	NZ	
Dicksonia	lanata	Dicksoniaceae	Otari	
Perennials				
Collospermum	hastatum	Asteliaceae		
Geranium	traversii	Geraniaceae	Fernglen	
Arthropodium	cirratum	Asparagaceae	NZ	
Arthropodium	candidum	Asparagaceae	DBG	Dwarf Rock Lily 15cm
Scandia	rosifolia	Apiaceae	NZ	
Colensoa	physaloides	Campanulaceae	CBG	
Ranunculus	lyallii	Ranunculaceae	Otari	
Celmsisia	semicordata	Asteraceae		
Celmsisia	holosericea	Asteraceae	DBG	
Celmsisia	densiflora	Asteraceae		
Celmsisia	prorepens	Asteraceae	CBG	
Myosotis	petiolata var. pottsiana	Boraginaceae		
Myosotidium	hortensia	Boraginaceae		
Myosotidium	hortensia var. alba	Boraginaceae	DBG	Comes true from seed
Astelia	nervosa	Asteliaceae	Mount Manaia	
Astelia	banksii	Asteliaceae		
Astelia	chathamica	Asteliaceae		Lights up a shady area
Astelia	trinervia	Asteliaceae	Broadfield	Kauri grass
Astelia	petriei	Asteliaceae	South Island	Alpine
Aciphylla	aurea	Apiaceae		
Aciphylla	squarrosa	Apiaceae		
Aciphylla	subflabellata	Apiaceae		The least spiky Aciphylla
Aciphylla	dieffenbachia	Apiaceae	DBG	
Aciphylla	colensoi	Apiaceae	Christchurch	
Aciphylla	glaucescens	Apiaceae	Christchurch	
Ourisia	macrocarpa	Plantaginaceae	DBG	Attractive basal leaves
Haloragis	erecta	Haloragaceae		
Sonchus	kirkii	Asteraceae	ABG	Coastal
Picris	burbidgeae	Asteraceae	ABG	
Phormium	tenax	Asphodelaceae	NZ	
Phormium	cookianum	Asphodelaceae	NZ	
Libertia	edgariae	Iridaceae		

Libertia	ixioides	Iridaceae	CBG	
Typha	orientalis	Typhaceae	Abel Tasman	
Juncus	maritimes australiensis	Juncaceae	Abel Tasman	
Lupinus	arboreus	Fabaceae	Paripuma	Invasive
Xeronema	callistemon	Xeronemataceae		
Anisotome	aromatica	Apiaceae	CBG	
Anisotome	latifolia	Apiaceae	DBG	
Anisotome	lyallii	Apiaceae	CBG	
Scleranthus	uniflorus	Caryophyllaceae	CBG	
Helichrysum	'Graeme Patterson'	Asteraceae		
Helichrysum	intermedium	Asteraceae	CBG	Cord-like leaves
Raoulia	subsericea	Asteraceae	CBG	Alpine - South Island
Raoulia	hookeri	Asteraceae	ABG	Glaucus
Pimelea	aridula	Thymelaeaceae		
Anaphalioides	hookeri	Asteraceae	DBG	Daisy flowers
Jovellana	repens	Calceolariaceae		
Mazus	novaezeelandiae	Mazaceae	DBG	Forming compact, leafy rosettes
Gunnera	hamiltonii	Gunneraceae		Coastal/dunes, creeping
Ground cover				
Leptinella	squalida	Asteraceae		
Acaena	novae-zelandiae	Rosaceae		
Acaena	caesiiglauca	Rosaceae		Not too aggressive
Elatostema	rugosum	Urticaceae		Wet ground- stream edges
Rubus	× barkeri	Rosaceae		Tolerant of dry, windy conditions.
Pimelea	prostrata	Thymelaeaceae	NZ	Attractive blue foliage
Gunnera	prorepens	Gunneraceae		Purple-flushed, scalloped leaves
Meuhlenbeckia	axillaris	Polygonaceae	Paripuma	
Comprosmia	'Flat Freddy'	Rubiaceae		Low growing shrub
Coprosma	'Red Lobster'	Rubiaceae	DBG	
Fuchsia	procumbens	Onagraceae	Auckland	
Korthalsella	lindsayi	Viscaceae	DBG	Leafless mistletoe
Dactylanthus	taylorii	Balanophoraceae		Fully parasitic flowering plant
Lobelia	angulata	Campanulaceae	CBG	Masses of white flowers in the spring
Grasses				
Chionochloa	beddiei	Poaceae	Paripuma	
Chionochloa	antarctica	Poaceae	DBG	
Chionochloa	rubra	Poaceae	NZ	5-6 years lifespan/ slow growing
Chionochloa	flavicans	Poaceae	CBG	
Chionochloa	conspicua	Poaceae	CBG	
Festuca	novae-zelandiae	Poaceae		
Poa	billiardierei	Poaceae	Abel Tasman	
Poa	colensoi	Poaceae		
Poa	cita	Poaceae	Broadfield	Silver tussock grass
Anemanthele	lessoniana	Poaceae		

Cortaderia	sellowiana	Poaceae	NZ	
Anthosachne	solandri	Poaceae	CBG	
Carex	testacea	Cyperaceae		
Carex	comans	Cyperaceae		
Carex	flagellifera	Cyperaceae	DBG	Golden brown
Carex	secta	Cyperaceae	Broadfield	wetland sedge
Carex	chathamica	Cyperaceae	Broadfield	Peaty bogs
Carex	solandri	Cyperaceae	Broadfield	Dry scade
Gahnia	xanthocarpa	Cyperaceae		Prefers damp ground
Gahnia	procera	Cyperaceae	DBG	Giant sedge
Ficinia	spiralis	Cyperaceae	Sand dunes	
Hierochloe	novae-zelandiae	Poaceae	DBG	