

The Magazine of the Friends of Pukekura Park

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*Friends of Pukekura Park
New Plymouth*

Podocarpus totara, Rhododendron Dell

Photo Derek Hughes

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Podocarp bark in Goodwin Dell area

Elise Smith

Goodwin Dell has an interesting selection of trees in the Family Podocarpaceae. They have an ancient lineage with most species found in the southern hemisphere, having diversified after Gondwanaland started breaking up and drifting 130 million years ago. Podocarps are distinguished from other conifers as the female has a colourful fleshy body holding the seed, not a cone. Many of the podocarp species are dioecious, having separate male and female trees, and it is impossible to tell them apart until they flower. This has to be borne in mind for restoration projects and “selective logging” operations.

One of the South African podocarps, Henkel’s Yellowwood (*Podocarpus henkelii*) [1], is identified by its dramatic spiky green foliage. It is on the southern side of the Dell between two New Zealand relatives, a Rimu (*Dacrydium cupressinum*) and a Tanekaha/Celery Pine (*Phyllocladus trichomanoides*) [2]. The bark of Rimus varies greatly. Some have large flakes, whilst others like this one by the steps leading down and away from Goodwin Dell [3] appear scaly. Opposite it is a magnificent multi-stemmed Miro (*Prumnopitys ferruginea*) [4] with its bark textures enhanced by mosses and lichens.

On the bank above the Miro, to the east, is a large Matai (*Prumnopitys taxifolia*) [5] with a large blue-green crown, its trunk partly concealed by the bush. The bark is characteristic of the species, a palette knife treatment of oil paint in earthy shades with a few purple-red patches, evidence of recent flaking. Nearby is Hall’s Totara (*Podocarpus hallii*) [6] which is tolerant of cold and seen in the Goblin Forest on the mountain. It has thinner, stringier bark than the lowland Totara (*Podocarpus totara*) [7]. If you cross the stream heading north you will see many Totara above you on the bank to the left. On the right, close by the path, is a Kahikatea (*Dacrycarpus dacrydioides*) [8], which enjoys damp surroundings near the stream and is coloured white with lichen.

The podocarps form a substantial part of most forests in New Zealand, and are an essential food source for birds. They were a valuable timber source, but felling is now strictly controlled. Uses ranged from Totara wood for wakas, roof shingles, and railway sleepers to Kahikatea wood used for cheese and butter boxes. Now old railway sleepers are recycled with the most unusual product being for skincare using the extracted antibacterial “totarol”.



#3 *Dacrydium cupressinum*
Rimu

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#1 *Podocarpus henkelii*
Henkel's Yellowwood



#2 *Phyllocladus trichomanoides*
Tanekaha/Celery Pine



#3 *Dacrydium cupressinum*
Rimu



#4 *Prumnopitys ferruginea*
Miro



#5 *Prumnopitys taxifolia*
Matai



#6 *Podocarpus hallii*
Hall's Totara



#8 *Dacrycarpus dacrydioides*
Kahikatea



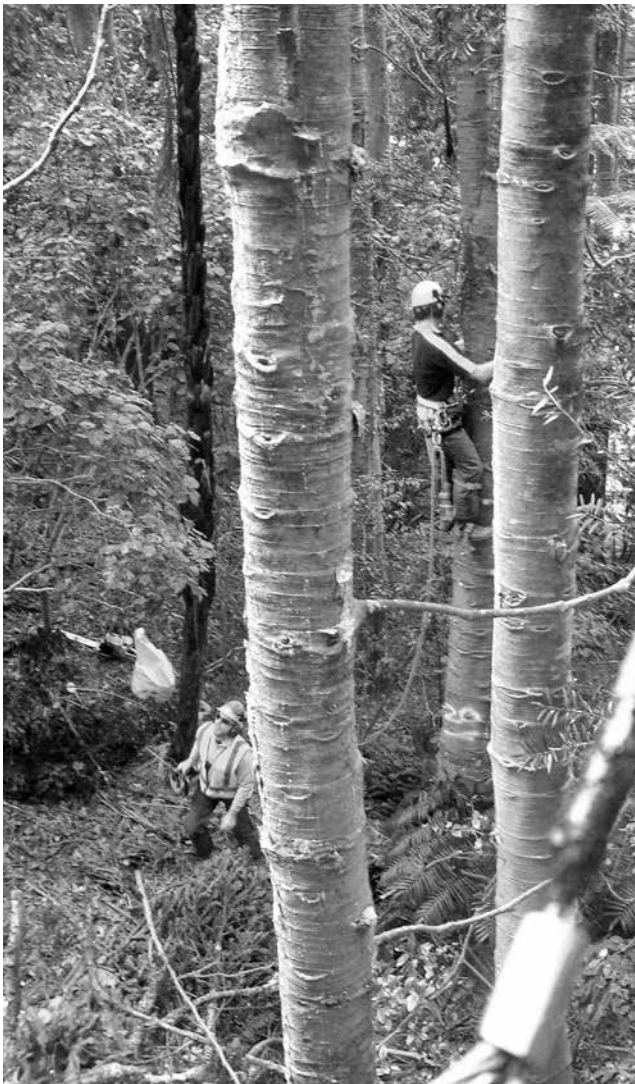
#7 *Podocarpus totara*
Totara

Photos Elise Smith

The thinning of Kauri Grove

David Medway

In 1936-1938, 500 Kauri (*Agathis australis*) and many other native trees were closely-planted by Thomas Horton in that part of Brooklands now known as Kauri Grove ("The planting of Kauri Grove" *Magazine of the Friends of Pukekura Park* 5(3)(October 2010): 4-7). Apparently, these Kauri were thinned about 15 years later by Jack Goodwin who succeeded Thomas Horton as Curator of Pukekura Park. Many years afterwards, in 2002, Jack Goodwin recalled that "a thinning of approximately 50% was carried out in about 1950 as the stand was already displaying signs of suppression. The logs responded to treatment (tanalising) about the same as *Pinus radiata* and some were used to form the entrance pergola at Brooklands Zoo" (Smith & Fuller *The notable trees of New Plymouth* (2007: 25)). Unfortunately, nothing more is known about this first attempt to manage the many Kauri that had been planted in the grove.



In 2001, the New Plymouth District Council approached Forest Research (now Scion) of Rotorua to develop management options for Kauri Grove. An assessment in September 2002 by Bryan Gould, Manager, Premier Parks, New Plymouth District Council and Greg Steward, Scientist, Forest Research identified many multi-leadered, suppressed, and dead standing trees. The data gathered indicated the need for a thinning of the Kauri to allow for the continued development of retained trees and to improve stand health and public safety. Their report suggested several options for thinning of the Kauri. A well-attended community workshop, organised by the District Council in association with Tane's Tree Trust, was held on 4 October 2002. The workshop, which included a visit to Kauri Grove, provided an opportunity to learn about and discuss Kauri ecology and management and the reasons behind the Council's intention to thin the trees in the grove.

Thinning of the Kauri began in November 2002. The work was undertaken by the District Council's Parkscape staff under the leadership of Bruce MacDonald, now senior consulting arborist for Asplundh, to whom I am grateful for



Photos courtesy of Bruce MacDonald



the photographs that accompany this article. Some of the wood from felled trees that was suitable for wood-turning was made available to local wood turners, and samples from the trunks and leaders of 20 of the larger-diameter trees felled were obtained by Forest Research for research purposes. The samples provided the raw material for a paper entitled "Plantation-grown New Zealand Kauri: A preliminary study of wood properties" that appeared in the *New Zealand Journal of Forestry Science* 35(1)(2005): 35-49. The stumps of the felled trees, and the trunks and leaders that were not otherwise utilised, were left on site to break down naturally. Records held at the Pukekura Park Curator's office show that 129 Kauri had been felled as at 11 February 2003. Illustrated articles about the thinning appeared in the *Taranaki Daily News* of 24/9/2002, 13/11/2002, 27/6/2003, and 18/8/2003. About 86 living Kauri remain in the grove.

George Fuller, while Curator of Pukekura Park from 1965-1990, had wanted to undertake thinning in Kauri Grove, but constraints of finance and time prevented him doing so. On 9 May 2003 he wrote to the Mayor of New Plymouth commending the Council on the steps it took to fully acquaint the community with the reasons for and methods to be adopted prior to what was to inevitably be a controversial exercise. George told the Mayor that he was "also very impressed with the standard of workmanship carried out by the team of arborists involved in the thinning process. Removal of malformed and ailing specimens in such a dense stand without damage to those chosen to remain is a particularly complex and demanding activity involving the use of chainsaws near tree-top level. Dismantling trees from the top downwards is not a task for the faint-hearted! This team employed techniques which in my day had not even been dreamed about. Their level of skill was so great that I have to confess that perhaps it was just as well in the long-run that we didn't manage to find the time or finance to get on with the task because we would have been obliged to use the "one base-cut and run like Hell" technique which would definitely not have been in the best interests of the residual trees".





Park spring update

**Ian Hutchinson
Technical Officer Pukekura Park**



Over the winter the Parks Team has been busy planting, focusing on building on some of the gardens we have revamped over the last few years plus revamping and renovating various borders and gardens in Pukekura Park that were in need of rejuvenation.

During the winter the herbaceous border in Brooklands Park has had some additions to groups of varieties to fill out the border more, and reduce the amount of bare ground. We added the same varieties that were used in last year's renovation. Also, the border plants have been pruned back and then mulched with composted bark. The changes to the Norfolk Island Pine border to improve sight lines are now complete, and the trunks of the trees are revealed more. The gaps under the trees have been planted with more ferns and *Arthropodium*. For many years there has been a planting of *Alocasia odora* in the TSB Bowl of Brooklands under the trees adjacent to Saxton Walk. Over winter we have added five new species to this area and to the gardens on either side of the Bowl stage to create a collection of the various types of Taro.

Goodwin Dell has been revisited to augment the renovation works undertaken there last year by adding a selection of new Asiatic perennials to complement the existing Hostas and Astilbes. Some of the new perennials are varieties and species of *Lilium*, *Rheum*, *Rodgersia*, *Helleborus*,



Arisaema and *Podophyllum*. The gardens at each end of Boat Shed Bridge have been given a revamp. The garden at the eastern end now has more ferns, and the garden at the western side has been cleaned up, composted, and replanted. We have added *Deutzia* 'Nikko', *Phlomis russeliana*, *Epimedium* and *Bartlettina sordida*. This should result in more flowers here over the spring and summer.

At Palm Lawn our plantings have included more *Philodendron* 'Xanadu' to thicken up the existing plants, two new *Canna* varieties 'Australia' and 'Intrigue', and two new palm species *Sabal minor* and *Geonoma undata*. These new plants are building on the sub-tropical look and feel in this garden. The border at the Victoria Road entrance to Hughes Walk has had a clean-up and we have taken the opportunity to plant a collection of *Kniphofia* species, some of which are endangered in the wild. The species are *Kniphofia caulescens*, *ensifolia*, *gracilis*, *hirsuta*, *tysonii* and *umbrina*. All of these species flower in winter through to spring, and one or two into the summer, so this will boost the colour there at that time of the year.

The revamp of the borders at the Fred Parker Lawn is now complete and the gardens have been mulched with composted bark. The range of perennials we have added include varieties of *Penstemon*, *Geranium*, *Eryngium*, *Lobelia* and *Centaurea*, which should see a dramatic increase in the amount of flower colour displayed in this garden during peak visitor season. We have moved things around a little in the south border with the *Ligularias* being relocated to the back and side of the border under the Maple. These have settled well and are making good new growth. The new patch of bedding in this border is starting to show some colour now and will only get better as spring progresses. We have planted a new *Aspidistra* variety called 'Shooting Stars' in the gap in the middle of the south border. In Stainton Dell we have been renovating the gardens around the top Lily Pond. The *Astilbe* have been lifted, the soil composted, and then replanted. We have also added some new plant material as well to increase the collections and to add more interest to this area. The new plants include varieties of *Ligularia*, *Lysimachia*, *Primula*, *Rheum* and *Cardiocrinum*.

Lastly, we have been working on an area known as the Vireya Bank, above Fred Parker Lawn, where we have planted a new collection of Cycads. This is an addition to the existing collection of Cycads that have flourished there, and will fill spaces where the Vireya Rhododendrons have declined and died out.



Photos Derek Hughes

Rugby World Cup displays

Donna Christiansen

Technical Officer Fernery and Display Houses

Spring is now upon us and we are looking forward to the rapid growth of display plants and visitor numbers. The Rugby World Cup games in New Plymouth brought the Lights by Night Festival which saw the lights put up in the Park and installed in The Fernery and Display Houses. The New Plymouth District Council Events Team installed a small TV and DVD player and we have been running an historical DVD of New Plymouth showing the amazing changes around the City and its parks over the last 50 years. The Events Team also produced a large notice board with some historical facts about Pukekura Park which will be on permanent display here.



The Japanese display has been replaced with a display of New Zealand native plants and information on Rongoa Maori medicinal plants and their purposes. This display was created to show Rugby World Cup visitors the beauty and diversity of our native flora. It has created a lot of interest with all visitors, even the locals, who are unaware of some of the not-so-common native plants and the medicinal properties they



possess, for example, Poroporo (*Solanum aviculare*) which was grown commercially in Waitara in 1978 to extract chemicals to be used in the contraceptive pill.

What is Rongoa Maori? (contributed by Judi Lee).

Rongoa is the Maori term for medicines that are produced from native plants in New Zealand. More than 200 plants were used medicinally by Maori. Some also had other uses like food, weaving, and carving. Maori believed plants and Man have a common origin, both being offspring of Tane, the controller or God of the forests and of fertilization. In traditional times, before the colonisation of New Zealand, Maori saw science and religion as the same entity, and believed that illnesses were caused by supernatural sources. Maori had a good concept of anatomy, physiology, and the use of plants for healing. The Tohunga was the traditional Maori healer and priest and was perceived as the mediator between spirits and the people. Colonisation had a significant effect on traditional Maori healing. Tohunga had limited ability to combat the diseases brought by Europeans. A French nun, Mother Aubert, went to live among the Maori, spending a lot of time on the Wanganui River. By the end of the 19th century her native plant remedies were commercialised and were widely available throughout the colony of New Zealand.



A selection of shape and texture from the native collection

Animal enrichment

Maxine Jenkins
Keeper Brooklands Zoo

In the wild, animals spend most of their time searching for food, raising their young, and keeping safe from predators. By providing the best care possible for our Zoo animals, a lot of these natural behaviours are no longer needed and they can become inactive or develop unwanted behaviours. We want to keep our animals as physically and mentally healthy as possible and enrichment is one of the tools keepers have to accomplish this. Enrichment is our way of making the animals' environment stimulating and sometimes challenging through the use of scent, food, objects, and training.



Mtoto searching for bugs
in rotten wood

Keepers constantly have to keep thinking up new ideas to improve and challenge the lives of the animals in our care. Giving animals a choice about how they interact with their environment is an essential part of daily care. When we give enrichment items, there are a few things we keep in mind: Will the animal injure itself or others? Can the animal digest it if eaten? Remember, if you can't, they can't either, though they'll probably give it a try. What behaviors will this object stimulate? Being lucky enough to be situated in Pukekura Park, we have access to large amounts of raw materials to give to our animals.

Browse is the term we use when referring to plant material which can be used as food, nesting material, perches, places to hide in, and in the case of our Capuchin monkeys, yet another source of amusement when they see how many pieces they can rip it into for us to clean up! Not only does browse provide excellent nutrition, but it is time consuming to eat and can be presented in dozens of different ways.

All of our animals benefit from items sourced in the Park. Our Meerkats will spend hours ripping apart rotten logs, and searching for the tasty bugs inside. This is an excellent opportunity for our visitors to understand just how powerful their claws and teeth are as they engage in this natural behaviour. Spring is a great time to source enrichment from the park as flowering Cherry blossoms, Hibiscus flowers, fruiting Coprosma, and many other treats are enjoyed by our Cotton-top Tamarins and many of our free-flight birds. Pine cones can be stuffed with anything you can imagine and presented in numerous ways, from freezing them to hanging them from trees like Christmas decorations. New mulch from fallen trees in the Park is enjoyed by many as the new scents can be an interesting new addition to an enclosure. Chipped Pohutakawa seems to be the current favourite and it does smell divine. Even our locusts, which are fed out to the Zoo animals, get to enjoy freshly picked grass and are popular with most of the less squeamish visitors to the Zoo office!



Nephrite enjoying cherry pollen