

## **Appendix 2. Fungi list of the Claude Stream Valley recorded during the Botanical Society field trip by Clive Shirley.**

<i>Agaricus</i> sp.	<i>Entoloma haastii</i>	<i>Notholepiota areolata</i>
<i>Amanita nehuta</i>	<i>Favolaschia calocera</i>	<i>Pleurotus</i> sp.
<i>Artomyces turgidus</i>	<i>Ganoderma applanatum</i>	<i>Porphyrellus viscidus</i>
<i>Aseroe rubra</i>	<i>Hericium coralloides</i>	<i>Ramaria junquilleo-vertex</i>
<i>Boletus leptosperm</i>	<i>Laccaria tetraspora</i>	<i>Russula acrolamellata</i>
<i>Camarophyllum patinicolor</i>	<i>Lepiota</i> sp.	<i>Russula macrocystidiata</i>
<i>Campanella tristis</i>	<i>Leucocoprinus fragilissimus</i>	<i>Weraroa erythrocephala</i>
<i>Clavaria sulcata</i>	<i>Mycena australororida</i>	<i>Xeromphalina tenuipes</i>
<i>Cryptotrama asprata</i>	<i>Mycena</i> sp.	

## **Additional fern records from Mt Egmont National Park**

**Barbara Parris**

Barry Hartley compiled a list of vascular plants in Mt Egmont National Park (Keen, 2005) that is a valuable resource for botanists visiting the area. On checking his ferns against my lists of species seen during visits from 1969 to 1971, I noted the following omissions from his list: *Grammitis patagonica*, *G. poeppigiana*,

*Hymenophyllum bivalve*, *H. villosum*, *Pteridium esculentum* and *Sticherus cunninghamii*. Of these species, *Grammitis poeppigiana* was seen by Enid Asquith on the Bot. Soc. visit of 26-28 March 2005, but it would be interesting to know whether the other five species still occur on the mountain.

### **Reference**

Keen, A. (2005) Field Trip: Taranaki/Egmont National Park. 27/03/05. *Auckland Botanical Society* 60(1): 22-24.

## **Centennial Park, Campbells Bay, North Shore City**

**Richard Hursthause, John Morton & Pat Morton**

### **Location and description**

Centennial Park comprises approximately 70ha within the Campbells Bay catchment. The catchment itself is approximately 166 hectares. The Campbells Bay stream has two main tributaries, the north and the south and drains to Campbells Bay, one of the East Coast beaches of the North Shore. The top of the catchment is mainly comprised of the 45ha Pupuke Golf Course bordering East Coast Rd and Kowhai Rd, with a maximum height of approx 60m asl. The Northern catchment is mainly housing, whereas 28ha of regenerating native bush surrounds the southern branch and its tributaries, albeit with housing on both flanks. There are also significant fields of grass and introduced bulbs in the southern catchment with an area of planted exotic trees interspersed with native planting. The Campbells Bay Tennis club has 6 courts in this area surrounded by exotic and native trees.

### **History**

The park was originally set aside as reserve in 1884, the golf club being established in 1914. Significant native and exotic planting occurred around the NZ Centenary in 1940, when the park was named Centennial Park. Planting around that time included an avenue of Pohutukawa stretching from Rae Rd to the Beach Rd entry, now on the notable trees list of North

Shore City. Unfortunately during the war years the valley was bulldozed by the army to provide line of sight from at least three pillboxes in the upper valley. The park was left to regenerate until 1977, when workmen clear felled approximately a hectare of regenerating bush near the tennis club. This sparked off the eventual establishment of the Centennial Park Bush Society, which has worked in the park since then under the leadership of Mrs Pat Morton, until 1996, when Pat retired as chairperson. Work included ongoing weed control, planting and track work, but also the inevitable politics and advocacy to council and the community. Since 2003 there has been renewed interest with significant work occurring under the leadership of RH.

### **The golf club**

The golf club lease includes a number of bush remnants and eucalypt plantations. This article does not attempt to describe the vegetation on the golf club lease. However there is a plan for tree management on the golf club prepared in 2000. A significant bush remnant in the headwaters of the Northern branch of the stream is listed as a significant area in the North Shore ecology study. It is heavily invaded with invasive weeds but is the subject of an Ecological Restoration

Plan prepared by the Centennial Park Bush Society, and subject to early consultation at present.



Centennial Park aerial view with main watercourses marked. Golf club to the west. "Just Scrub" in the southern valley. Park Rise Bush is the "J" shaped bush to the Northwest.



Clear felled scrub 1978, catalyst for the birth of the Centennial Park Bush Society

#### The Indigenous Bush: "Just Scrub"

The 28ha area referred to in Pat and John Morton's book as "Just Scrub", has been the main focus of the Bush Society. This is well tracked, with a nature trail well established leading from the clearing below the pine tree carpark, up the Tui, Kohekohe, Putaputaweta, Mamaku and Baylis Tracks. Pick up a trail guide from the Rae Rd entrance, or the North Shore City Council information centre in Hurstmere Rd, Takapuna. You can also download a copy from [www.manawa.org.nz](http://www.manawa.org.nz) under Centennial Park. The Baylis track is named after Professor Geoff Baylis, Professor of Botany for many years at Otago University, who grew up in Campbells Bay. His father Gerald de Sandford Baylis owned much of the land around Sandford St off Park Rise, and was involved in early planting of native trees around the time of World War 2. Before he died Professor Baylis planted two *Pennantia baylisiana*, a tree he discovered on the Three Kings Islands. A Baylis memorial bench has

recently been installed at the 14<sup>th</sup> tee of the golf club overlooking the valley.



Mrs Pat Morton and Professor Baylis planting *Pennantia baylisiana* 2003

#### The grassed slopes: seasonal colour

At the turn of the century, when a regular shipping route existed from Capetown, introduction of bulbs and corms in soil and ballast was continually possible. Today, with the South African Iridaceae in the open grasslands and margins around the bush, we have an interesting legacy of this era. These spring and summer adventives form a seasonally attractive ground cover. Species include *Sparaxis bulbifera*, *Sparaxis tricolor*, *Aristea ecklonii*, *Watsonia bulbifera*, *Sisyrinchium iridifolium*, *Babiana stricta*, *Gladiolus undulatus*, and *Crocosmia xcrocosmifolia*. The park mowing policy allows these to show off each year before being mowed. Recently one of the fields has been host to music in the park concerts in summer.

#### The Exotic Trees

There is a significant collection of exotic species in the lower part of the park, from very large *Pinus radiata*, to recently planted *Michelia* in the Magnolia collection. The Bush Society has planted many, including a collection of oaks and conifers. These trees are being catalogued with colour photos by the author with the help of Mike Wilcox and Ewen Cameron.

#### Park Management

There is a policy of ongoing weed control in the park. The council budget for this is meagre and is supplemented by volunteer work and funds raised by the Bush Society. Recently the Bush Society has sought consent to remove large wilding pines within the bush. These were previously allowed to be ring barked, but now no longer. In addition we have raised funds to gradually remove *Acmena smithii* and *Acacia longifolia*. Unfortunately a small group of residents is opposed to removing these weed species from the park and has appealed the consent to the Environment Court.

### **A suggested tour of the Centennial Park Bush**

Arm yourself with a guide from the Rae Rd entry. Park in the Pine tree carpark, below the tennis club. Admire the *Pinus pinaster* and *Pinus palustris*. Walk down to the clearing and right along the track toward the sea (Magnolia Walk). On the left is the wetland restoration project area. The conifer collection is on the right past the boardwalk. When you hit the park road (Morton Way), turn right past the camellia collection and proceed along the Pohutukawa Avenue of Remembrance planted in 1940. When you get to the gully past the tennis club, climb to the seats for a fabulous view of Tiritiri Matangi.



**The Avenue of Remembrance, planted 1939**

When you have soaked in the scene proceed back down to the road and turn down the Zig Zag Track. This passes through the area felled in 1975, hence all the uniform sized manuka (*Leptospermum scoparium*). Back at the clearing enter the bush along the Tui track. This is the start of the nature trail. At the stream you will see the large round headed kahikatea (*Dacrydium dacrydioides*) and all its babies. Follow the nature trail to the bottom of the Putaputaweta Track.

Here you have two options – proceed around the nature trail and back to the car park, or take a detour returning to this point after a 20 min circuit.

To take the detour, take the Kohekohe Track left for 20m then turn uphill on the Kowhai Track. This passes a grove of wattles we wish to see removed. At the top of the hill by the houses turn right along the Aberdeen Track, as far as the golf club. Turn right along the Mamaku track into the *Pinus pinaster* plantation. Proceed along the Mamaku Track where you will pass through several mamaku (*Cyathea medullaris*) groves. Turn down the Kohekohe Track, returning to the Putaputaweta Track via significant kiekie (*Freycinetia banksii*), a largish kohekohe (*Dyssoxylum spectabile*), raupo (*Typha orientalis*) swamp and remains of a gumdiggers hut.

Continue up the aptly named Putaputaweta Track. At the top of the Putaputaweta Track a quick left detour through the bush will take you to the lookout at the 14<sup>th</sup> tee for a fine view down the valley, with its emergent tanekaha (*Phyllocladus trichomanoides*). (Take the Mamaku Track left for about 20m, then turn right up an ill defined pine needle trail to the golf course.)

Returning to the top of the Putaputaweta Track, continue along the Mamaku Track until you see a large row of *Pinus elliotti*. At the junction with the Baylis Track, you have the option of a detour left to the golf club then right down the concrete path to take a look at the Park Rise Bush remnant at the top of Park Rise. The nature trail follows the Baylis track back to the clearing and car park. Along this trail very new bush with *Dracophyllum sinclairii* is giving way to more mature growth.



Centennial Park main bush tracks. Brochures at Rae Rd entry point.

#### Acknowledgements:

Ewen Cameron and Mike Wilcox for help with plant identification.

#### Species list for Centennial Park:

Native species

(p) = planted

Gymnosperms	Monocots
<i>Agathis australis</i>	kauri
<i>Dacrycarpus dacrydioides</i>	kahikatea
<i>Dacrydium cupressinum</i>	rimu
<i>Libocedrus plumosa</i>	kawaka
<i>Phyllocladus trichomanoides</i>	tanekaha
<i>Podocarpus totara</i>	totara
<i>Prumnopitys taxifolia</i>	matai
	<i>Arthropodium cirratum</i> rengarenga lily
	<i>Astelia banksii</i> (p)
	<i>Astelia trinervia</i>
	<i>Baumea juncea</i>
	<i>Carex dissita</i>
	<i>Carex lambertiana</i>
	<i>Carex lessoniana</i>

<i>Carex virgata</i>	cabbage tree	<i>Leucopogon fasciculatus</i>	mingimingi
<i>Cordyline australis</i>	forest cabbage tree	<i>Lophomyrtus bullata</i>	ramarama
<i>Cordyline banksii</i>	dwarf cabbage tree	<i>Macropiper excelsum</i>	kawakawa
<i>Cordyline pumilio</i>	toetoe	<i>Melicope ternata</i>	wharangi
<i>Cortaderia fulvida</i> (p)		<i>Melicytus ramiflorus</i>	mahoe
<i>Cyperus ustulatus</i>	blueberry	<i>Meryta sinclairii</i>	puka
<i>Dianella nigra</i>	kiekie	<i>Metrosideros excelsa</i>	pohutukawa
<i>Freycinetia banksii</i>		<i>Myrsine australis</i>	mapou
<i>Gahnia lacera</i>		<i>Olearia furfuracea</i>	akepiro
<i>Gahnia setifolia</i>		<i>Olearia paniculata</i>	akeraho
<i>Gahnia xanthocarpa</i>		<i>Olearia rani</i> (p)	heketara
<i>Juncus prismatocarpus</i>	bush rice grass	<i>Pennantia baylisiana</i> (p)	
<i>Lepidosperma australe</i>		<i>Pittosporum crassifolium</i>	karo
<i>Libertia ixioides</i>		<i>Pittosporum eugenoides</i>	lemonwood
<i>Microlaena avenacea</i>		<i>Pittosporum tenuifolium</i>	kohuhu
<i>Morelotia affinis</i>		<i>Plagianthus regius</i>	manatu
<i>Oplismenus hirtellus</i>	flax	<i>Pomaderris apetala</i> (p)	tainui
<i>Phormium tenax</i>	montane flax	<i>Pomaderris kumeraho</i>	kumarahou
<i>Phormium cookianum</i>	nikau	<i>Pomaderris phyllicifolia</i>	tauhinu
<i>Rhopalostylis sapida</i>	sedge	<i>Pseudopanax arboreus</i>	five finger
<i>Schoenus tendo</i>	raupo	<i>Pseudopanax crassifolius</i>	lancewood, horoeka
<i>Typha orientalis</i>	hook grass	<i>Pseudopanax lessonii</i>	houpara
<i>Uncinia uncinata</i>		<i>Sophora chathamica</i>	kowhai
		<i>Sophora microphylla</i>	kowhai
		<i>Syzygium maire</i>	swamp maire (nr peg 21)

#### Dicots

<i>Alectryon excelsus</i>	titoki
<i>Aristotelia serrata</i>	makomako, wineberry
<i>Beilschmiedia tarairi</i>	taraire
<i>Brachyglottis repanda</i>	rangiora
<i>Carmichaelia australis</i>	native broom
<i>Carpodetus serratus</i>	putaputaweta
<i>Coprosma areolata</i>	
<i>Coprosma grandifolia</i>	raureka, kanono
<i>Coprosma lucida</i>	shining karamu
<i>Coprosma macrocarpa</i>	coastal karamu
<i>Coprosma repens</i>	taupata
<i>Coprosma rhamnoides</i>	
<i>Coprosma robusta</i>	karamu
<i>Corokia cotoneaster</i>	
<i>Corynocarpus laevigatus</i>	karaka
<i>Dracophyllum sinclairii</i>	gumland grass tree
<i>Dysoxylum spectabile</i>	kohekohe
<i>Entelea arborescens</i>	whau
<i>Geniostoma ligustrifolium</i>	hangehange
<i>Griselinia littoralis</i> (p)	broadleaf, kapuku
<i>Griselinia lucida</i>	puke
<i>Hebe stricta</i>	koromiko
<i>Hedycarya arborea</i>	pigeonwood
<i>Hoheria populnea</i>	lacebark
<i>Knightia excelsa</i>	rewarewa
<i>Kunzea ericoides</i>	kanuka
<i>Laurelia novae-zelandiae</i>	pukatea
<i>Leptocophylla (Cyathodes) juniperina</i>	prickly mingimingi
<i>Leptospermum scoparium</i>	manuka

#### Ground ferns

<i>Adiantum cunninghamii</i>	maidenhair
<i>Asplenium bulbiferum</i>	manamana, hen and chickens (? died)
<i>Blechnum novae-zelandiae</i>	kiokio
<i>Doodia australis</i>	pukupuku
<i>Gleichenia dicarpa</i>	umbrella fern
<i>Lindsaea linearis</i>	slender lindsaea
<i>Paesia scaberula</i>	scented fern
<i>Pneumatopteris pennigera</i>	gully fern
<i>Pteridium esculentum</i>	bracken
<i>Pteris tremula</i>	shaking brake
<i>Sticherus cunninghamii</i>	umbrella fern
<i>Trichomanes reniforme</i>	kidney fern

#### Tree ferns

<i>Cyathea medullaris</i>	mamaku, black tree fern
<i>Cyathea dealbata</i>	ponga, silver fern
<i>Dicksonia squarrosa</i>	wheki

#### Climbing ferns, epiphytic ferns, fern allies

<i>Asplenium flaccidum</i>	raukatauri
<i>Asplenium oblongifolium</i>	shining spleenwort
<i>Asplenium polyodon</i>	petako (nr peg 5)

<i>Blechnum filiforme</i>	thread fern	<b>Climbers</b>	
<i>Hymenophyllum bivalve</i>	(nr peg 21)	<i>Clematis paniculata</i>	puawhananga
<i>Hymenophyllum flabellatum</i>		<i>Muehlenbeckia complexa</i>	pohuhue
<i>Hymenophyllum sanguinolentum</i>		<i>Lycopodium articulatum</i>	mangemange
<i>Lycopodium deuterodensum</i>	club moss	<i>Parsonsia heterophylla</i>	NZ jasmine
<i>Microsorum pustulatum</i>	kowaowao, maratata, hounds tongue	<i>Passiflora tetrandra</i>	NZ passionfruit
<i>Microsorum scandens</i>	fragrant fern	<i>Ripogonum scandens</i>	supplejack
<i>Pyrrosia eleagnifolia</i>	leather leaf fern	<i>Rubus australis</i>	bush lawyer
<i>Tmesipteris tannensis</i>		<i>Rubus cissoides</i>	bush lawyer
		<i>Tecomanthe speciosa</i> (p)	

## Exotic species

\* = naturalising or invasive

<b>Gymnosperms</b>			
<i>Araucaria heterophylla</i>	Norfolk Island pine	* <i>Cortaderia selloana</i>	pampas grass
<i>Cedrus atlantica</i>	Atlas cedar	* <i>Crocosmia xcrocosmiiflora</i>	montbretia
<i>Cryptomeria japonica</i>	Japanese cedar	* <i>Cyperus eragrostis</i>	nut grass
<i>Cunninghamia lanceolata</i>	Chinese fir	* <i>Hedychium gardnerianum</i>	kahili ginger
<i>Cupressus funebris</i>	Chinese weeping cypress	<i>Juncus acuminatus</i>	
<i>Ginkgo biloba</i>	maidenhair tree	* <i>Iris foetidissima</i>	stinking iris
<i>Juniperus chinensis</i> 'Kaizuka'	Chinese juniper	* <i>Kniphofia uvaria</i>	red hot poker
<i>Juniperus squamata</i>	flaky juniper	* <i>Pennisetum clandestinum</i>	kikuyu grass
<i>Juniperus</i> sp.		* <i>Phoenix canariensis</i>	Phoenix palm
<i>Metasequoia glyptostroboides</i>	dawn redwood	<i>Phyllostachys aurea</i>	fish pole bamboo
<i>Picea orientalis</i>	Caucasian spruce	<i>Phyllostachys nigra</i>	black bamboo
<i>Picea sitchensis</i>	Sitka spruce	* <i>Setaria palmifolia</i>	palm grass
<i>Pinus coulteri</i>	bigcone pine, Coulter pine	<i>Strelitzia nicolai</i>	giant bird of paradise
<i>Pinus elliottii</i>	slash pine	* <i>Trachycarpus fortunei</i>	horse hair palm
<i>Pinus palustris</i>	longleaf pine	* <i>Watsonia bulbillifera</i>	watsonia
<i>Pinus patula</i>	Mexican weeping pine, Jelicote pine	* <i>Zantedeschia aethiopica</i>	arum lily
* <i>Pinus pinaster</i>	maritime pine		
<i>Pinus pinea</i>	stone pine		
<i>Pinus radiata</i>	radiata pine, Monterey pine		
<i>Pseudolarix amabilis</i>	golden larch (gone)	* <i>Acacia longifolia</i>	Sydney golden wattle
<i>Taxodium distichum</i>	swamp cypress	* <i>Acacia mearnsii</i>	black wattle
<i>Taxodium mucronatum</i>	Mexican bald cypress	* <i>Acacia verticillata</i>	prickly moses
		* <i>Acanthus mollis</i>	acanthus
		<i>Acer negundo</i>	box elder
		* <i>Acmena smithii</i>	monkey apple
		* <i>Ageratina riparia</i>	mistflower
		<i>Alberta magna</i>	Natal flame tree
		* <i>Araujia sericifera</i>	moth plant
		* <i>Babacao</i>	babacao
		<i>Betula</i> sp.	birch
		<i>Callistemon salignus</i>	white bottlebrush
		* <i>Calluna vulgaris</i>	heather
		* <i>Calystegia silvatica</i>	convolvulus, great bindweed
		<i>Camellia japonica</i>	camellia
		<i>Camellia sasanqua</i>	sasanqua camellia
		<i>Carica pubescens</i>	mountain pawpaw
		* <i>Cestrum nocturnum</i>	Queen of the night
		<i>Chiranthodendron pentadactylon</i>	hand flower tree, monkey claw (dead)
		* <i>Chrysanthmoïdes monilifera</i>	boneseed
<b>Monocots</b>			
* <i>Agapanthus praecox</i>	agapanthus		
* <i>Allium triquetum</i>	onion weed		
* <i>Alocasia brisbanensis</i>	taro, elephant ears		
* <i>Aristea ecklonii</i>	aristea		
* <i>Arundinaria</i> spp - at least two invasive	bamboo		
* <i>Asparagus aethiopicus</i>	bushy asparagus		
* <i>Asparagus asparagoides</i>	smilax		
* <i>Asparagus scandens</i>	climbing asparagus		
<i>Bambusa oldhamii</i>	green bamboo		
<i>Butia capitata</i>	jelly palm		
* <i>Cortaderia jubata</i>	purple pampas grass		

<i>Corymbia calophylla</i>	marri	* <i>Paraserianthes lophantha</i>	brush wattle
<i>Corymbia ficifolia</i>	red flowering gum	* <i>Passiflora caerulea</i>	blue passion flower
* <i>Cotoneaster lacteus</i>	cotoneaster	* <i>Passiflora mollissima</i>	banana passionfruit
* <i>Crassula multicava</i>	pitted crassula	* <i>Plectranthus ciliatus</i>	plectranthus
* <i>Dipogon lignosus</i>	mile a minute	* <i>Plectranthus ecklonii</i>	plectranthus, blue spur flower
<i>Elaeocarpus reticulatus</i>	blueberry ash		
* <i>Elaeagnus xreflexa</i>	elaeagnus	* <i>Plectranthus grandis</i>	plectranthus
* <i>Erigeron karvinskianus</i>	Mexican daisy	<i>Plectranthus mahonii</i>	shrubby plectranthus
* <i>Eriobotrya japonica</i>	loquat	* <i>Polygala myrtifolia</i>	sweet pea shrub
* <i>Erythrina xsykesii</i>	coral tree	<i>Pomaderris aspera</i>	
<i>Eucalyptus leucoxylon</i>	pink flowering gum	<i>Populus deltoides</i>	cottonwood
<i>Eucalyptus macarthurii</i>	Camden woollybutt	* <i>Populus xcanescens</i> ?	grey poplar
<i>Eucalyptus nicholii</i>	narrow-leaved peppermint	<i>Populus yunnanensis</i>	Yunnan poplar
<i>Eucalyptus viminalis</i>	ribbon gum	<i>Prunus armenaica</i>	apricot
* <i>Euonymus japonicus</i>	Japanese spindle tree	* <i>Prunus campanulata</i>	wild cherry
* <i>Fatsia japonica</i>	fatsia	* <i>Prunus serrulata</i>	wild cherry
<i>Fraxinus</i> sp.	ash	* <i>Psidium cattleianum</i>	purple guava
* <i>Hakea salicifolia</i>	hakea – willow leaved	<i>Quercus ilex</i>	holm oak
* <i>Hakea sericea</i>	hakea - prickly	<i>Quercus palustris</i>	pin oak
<i>Hedera helix</i>	ivy	* <i>Quercus robur</i>	oak
* <i>Homalanthus populifolius</i>	bleeding heart tree, Queensland poplar	<i>Quercus rubra</i>	red oak
<i>Hydrangea macrophylla</i>	hydrangea	* <i>Raphiolepis umbellata</i>	Sexton's bride
* <i>Ipomea indica</i>	blue morning glory	* <i>Rhamnus alaternus</i>	evergreen buckthorn
<i>Jacaranda mimosifolia</i>	jacaranda	* <i>Roldana petasitis</i>	velvet groundsel
* <i>Jasminum polyanthum</i>	jasmine	* <i>Rubus fruticosa</i>	blackberry
<i>Juglans nigra</i>	black walnut	* <i>Rumex sagittatus</i>	climbing dock
* <i>Lantana camara</i> var. <i>aculeata</i>	lantana	* <i>Salix fragilis</i>	crack willow
* <i>Ligustrum lucidum</i>	tree privet	* <i>Schinus teribinthifolius</i>	christmas berry, Brazilian pepper tree
* <i>Ligustrum sinense</i>	Chinese privet	* <i>Senecio angulatus</i>	Cape ivy
<i>Liquidambar styraciflua</i>	sweet gum	* <i>Senecio mikanioides</i>	German ivy
<i>Liriodendron tulipifera</i>	tulip tree	* <i>Solanum mauritanicum</i>	woolly nightshade
* <i>Lonicera japonica</i>	Japanese honeysuckle	<i>Stenocarpus sinuatus</i>	firewheel tree
<i>Magnolia campbellii</i>	pink magnolia	* <i>Tradescantia fluminensis</i>	wandering Jew
<i>Magnolia grandiflora</i>	evergreen magnolia	* <i>Ulex europaeus</i>	gorse
<i>Magnolia xsoulangeana</i> 'San Jose'	pink magnolia	<i>Ulmus glabra</i> 'Lutescens'	golden wych elm
<i>Melia azedarach</i>	Indian bead tree	* <i>Vinca major</i>	periwinkle
<i>Metrosideros kermadecensis</i>	Kermadec pohutukawa	<i>Zelkova serrata</i>	zelkova
<i>Michelia doltsopa</i>	south Asia michelia		
* <i>Monstera deliciosa</i>	fruit salad plant		
<i>Nerium oleander</i>	oleander		

#### Ferns

* <i>Nephrolepis cordifolia</i>	tuber ladder fern
* <i>Selaginella kraussiana</i>	African club moss

#### Other species listed in Management Plan (Boffa Miskell td), but not seen

<i>Abies concolor</i>	<i>Fagus sylvatica</i>
<i>Abies pinsapo</i>	<i>Ficus carica</i>
<i>Araucaria araucana</i>	<i>Gymnocladus dioicus</i>
<i>Arundo donax</i>	<i>Juniperus scopulorum</i> 'Blue Heaven'
<i>Bauhinia pupurea</i>	<i>Lithocarpus edulis</i>
<i>Brachychiton acerifolia</i>	<i>Melaleuca leucadendron</i>
<i>Cedrus deodara</i>	<i>Ostrya carpinifolia</i>
<i>Citrus</i> (grapefruit, mandarin)	<i>Picea pungens</i> Koster'
<i>Drimys winteri</i>	<i>Pinus ponderosa</i>
<i>Erythrina caffra</i>	<i>Populus tremula</i>

*Protea* spp.

*Sequoiadendron giganteum*

*Syagrus romanzoffianum*

*Ulmus procera*

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## New ocean at Whatipu

Andrew Pegman

Whatipu Beach, North Manukau Harbour, Auckland, has an interesting history of progradation, or extension of the coast in a seaward direction. Although extensive sand areas are now present, in the mid-nineteenth century and again in the 1930's no beach was present at all. Subsequently the beach has steadily prograded and natural vegetation succession has occurred, until the sand reached its greatest known width of more than 1 km in the 1980s (Pegman & Rapson 2005; NZAM 1987).

In 2001 I reported that considerable coastal erosion had taken place with loss of beach area (Pegman 2001; NZAM 2000) and erosion of the *Spinifex/Desmoschoenus* foredunes. This was probably due to decreased sediment supply to the area and/or increased transportation of substrate away by sea currents (Williams 1977). The sea was also starting to encroach on the fresh-water dune-slacks landward of the foredunes north of Nine Pin, and as a result the southern Whatipu coastal outline was then at approximately the same limit as the 1949 progradation front (NZAM 1949). I mentioned that it was possible there could be imminent loss (or lagoon formation) of a major portion of the beach because many of the dune-slack and bare sand areas are below mean high-tide level according to survey profiles (Pegman & Rapson 2005).

Many would now know that the entire area of bare beach front sand between Paratutai and Nine Pin has eroded, resulting in new ocean which is now entering older dune vegetation further inland (Figure 1). This remarkable change reportedly occurred overnight in

July 2005 (Timoti 2005). It is possible that Paratutai may become an island again, and that with further encroachment by the sea, Cutter Rock (a volcanic stack further inland) may be surrounded by ocean once more. Remember, a similar larger beach with extensive sand, vegetation, and lakes at South Manukau Head also disappeared in dramatic fashion, recorded as verbal tradition by Waiuku Maori (Smith 1878).



Whatipu, the white line marks the new coastline.

Fortunately many of the rare wetland plants at Whatipu such as *Eleocharis neozelandica* (AK 282311), *Schoenus nitens* (AK 228445), and *Schoenus concinnus* (AK 228444) reside mostly on the mid to northern Whatipu sands (Cameron & Pegman 1996; pers. obs. 2005) where they are protected for now by active net progradation there.

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