

**TE RAEKAIHAU PARK
(View Road South Headland Reserve)
RESTORATION PLAN**

2011 – 2015



**Te Raekaihau Restoration Group
and Kae Miller Trust**

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View to the South from near the beacon

1.0 GENERAL

1.1 The Reserve

Te Raekaihau Park is a 21.6 ha reserve on Wellington's South Coast, incorporating the headland dividing Lyall Bay from Houghton Bay, and overlooking Cook Strait. It includes Te Raekaihau Point and runs back to View Road South, just before Hungerford Road. Some of the fringes are privately owned, but the majority of the headland is owned by the Wellington City Council. It is currently being gazetted as a *Scenic B Reserve* under the Reserves Act of 1977.



The headland looking from near Island Bay

Geology: Greywackes and argillites (undifferentiated), including semi-schists. (NZ Soil Bureau Map 106/1)

Landforms: ridge, spur and raised marine terrace.

Altitude range: 0 m – 90 m above sea level.

Aspect: east, south and west.

Rainfall: 1100 mm p.a. (N.I.W.A.)

Ecological District: Wellington Ecological District 39.01.

Map Reference: NZMS 260, Sheet R27, R28, Pt. Q27, Wellington, centred on grid reference 597835.



The headland looking from Lyall Bay

The headland has a network of tracks used regularly by visitors and has stunning views of the South Coast. The vegetation is regenerating, with the gorse being taken over by flax, taupata, mahoe and an invasion of karo. The karo is not endemic to the area, and in places is a monoculture that excludes light and prevents the regeneration of undergrowth and canopy species. However, it also keeps shade tolerant weeds such as tradescantia in check. The karo, although now a pest, has been instrumental in preventing fires and provides a local honey source.



Te Raekaihau in 1926 – the site of “The Pines”. Even as far back as the 1890s it was quite barren, and may have been so pre-European settlement

As a reserve the land has been largely left to manage itself, except in the last 5-6 years, when the Council started upgrading and helping maintain the tracks. However, local individuals have been involved in its care and restoration in their own way, and with almost complete autonomy.

Te Raekaihau Point, the subject of intense protest when a marine centre tourism venture was proposed, is not included in this Restoration Plan; it has its own plan and planting programme, funded by the Plimmer Bequest to the Council.

Map of the Reserve



1.2 Te Raekaihau Restoration Group (TRiG)

In late 2011 a group of “homeless” tree planters adopted Te Raekaihau Park and formed the Te Raekaihau Restoration Group (TRiG) to provide help to the local land care group – the Kae Miller Trust. Other locals have since come on board for the regular working bees, and with recent improvements by the WCC, the park is beginning to lose its air of neglect.

1.3 Kae Miller Trust (KMT)

In 1981, Kae Miller adopted the area and formed the View Road Park Society to look after it. She built a small building in 1985 and named it the Alice Krebs Lodge after her friend Alice, who survived two years in a concentration camp. Kae lived in the lodge as a caretaker of the park, planting many trees in the name of conservation and peace. When Kae left in 1990 to live in a home, other caretakers looked after and hired out the Lodge for short stays. The Kae Miller Trust was formed in 2007 to honour and continue Kae's vision, planting trees and looking after the lodge. (See Appendix 3.7 for more information.)



Left: The Alice Krebs Lodge

Right: The Peace Grove (area 1) shortly after clearing

1.4 Wellington City Council (WCC)

There is a partnership between WCC Parks and Gardens Department, TRiG and KMT for the purpose of jointly realising the restoration of the reserve. All parties have signed a *Memorandum of Understanding*. (See Appendix 3.6)

The Wellington City Council maintains the park and walking tracks and undertakes predator control and major weed control.

1.5 Vision Statement

The bush and wildlife of Te Raekaihau Park matches the glorious views of coastline and sea that surround it, creating an experience for visitors to treasure forever.

2.0 RESTORATION OF THE RESERVE

2.1 Planting Plan

Degraded areas in the Te Raekaihau Park need to be enhanced by ecological restoration, either by being left to regenerate naturally or aided by tree planting. While most natural regeneration is more efficient and effective, tree planting is deemed necessary for the following reasons:

- To re-introduce plant species that will take a long time to re-establish
- To re-introduce or boost populations of rare plant species
- To increase food supplies or essential habitat for native fauna
- To hasten regeneration as a weed, fire or erosion control measure
- To provide education opportunities to groups.

Habitat restoration is not only re-establishing a cover of native plants but is also restoring the land to something approaching the original forest characteristics of that landscape. Attention is paid to planting each tree species in specific places to mimic the natural forest pattern. They need not be at the same abundance levels as natural forests as the composition of the forest will change many times before the climax forest is reached.

Habitat restoration must go hand in hand with control of invasive weeds and browsing pests, otherwise very little is achieved.

The planting season is from May/June until late October.



Left: Park entrance at View Road, planting area 5 around letterbox

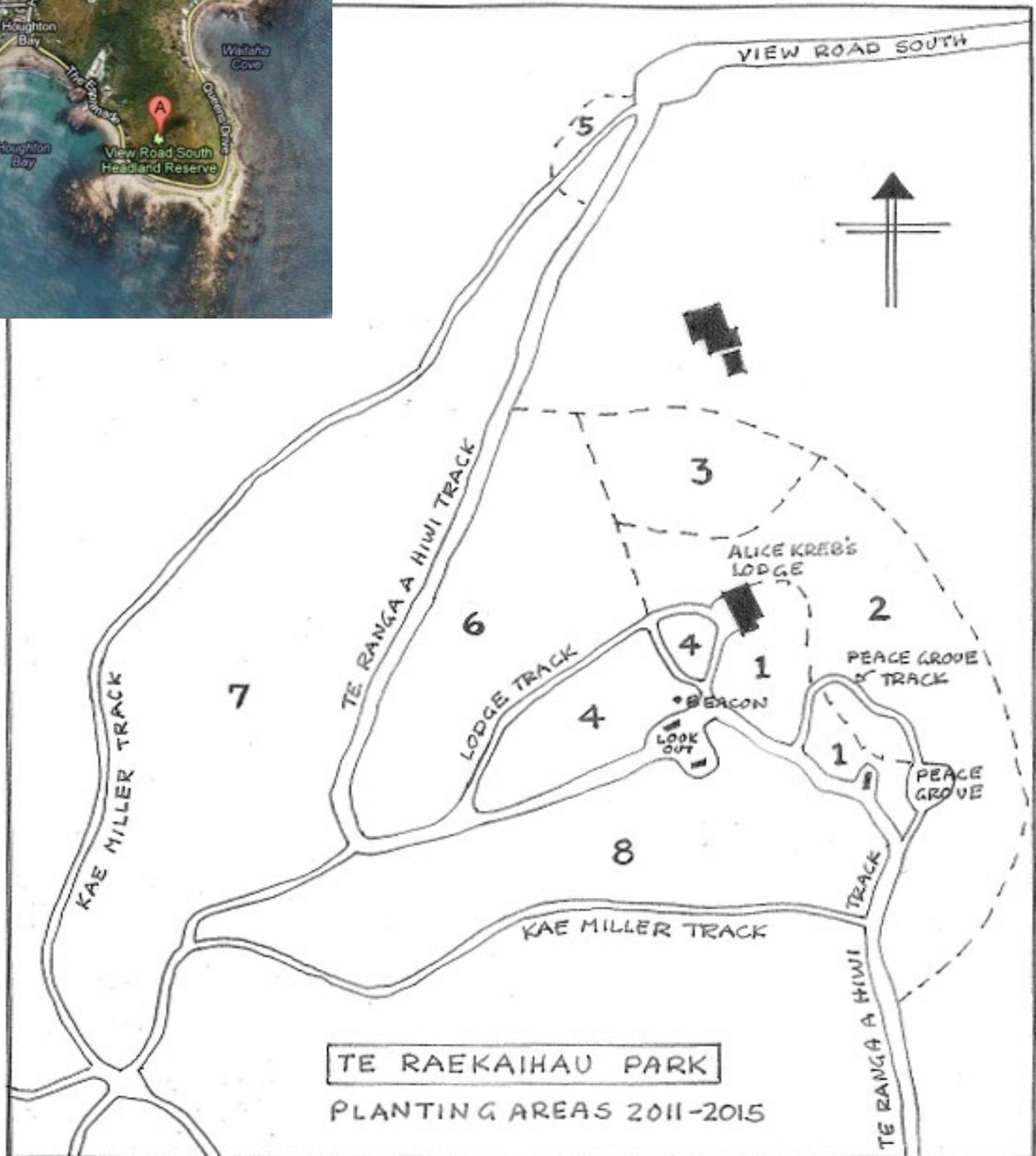
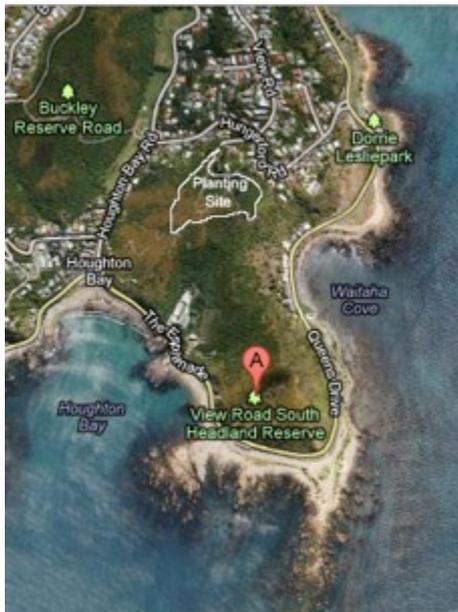
Centre: Planting area 4 to the left of the track, planting area 8 to the right

Right: Looking up to the beacon from the South, planting area 8 near the top

Planting Goals and Objectives (2011 – 2015)

Goal 1:	To aid regeneration of the headland to an original forested state		
	Objective 1:	Develop a methodology for planting appropriate plants in correct ratios for the different habitats.	
		Action 1: Create working lists of species to be planted in exposed and sheltered areas, with an indication of how many to plant, their size and the best situations to plant them in.	
		Action 2: Create a workable system of correct plant distribution and ratios based on the trays volunteers use to carry plants to the planting sites.	
		Action 3: Continue to refine process.	
	Objective 2:	Prepare planting sites during summer months and plant during winter months. Infill as necessary in following years.	
		Action 1:	Prepare a list of what needs doing in each area and keep updated. (See Appendix 3.3 for details.)
		Action 2:	Cut light wells in dense groves by pruning karo, to create suitable conditions for canopy species to grow.
		Action 3:	Cut pockets in gorse to plant exposure tolerant species, but maintain a degree of shelter to encourage growth.
		Action 4:	Plant new seedlings in designated planting sites (see Planting Sites Map) according to their correct habitat. If sites are not already prepared, then the right conditions for planting need to be created at the same time. Plans of what areas to plant when can change depending on the plants/workforce available, and weather conditions, so have not been worked out in detail.
		Action 5:	Record numbers of plants planted and the areas planted. Revisit earlier plantings to establish if infill planting is necessary.
	Objective 3:	During summer months each year, remove weeds and other plants not endemic to the area in an ongoing process.	
		Action 1:	Release grasses around young plants in exposed areas until they are above the grass level. Ensure plants near track edges are visible to avoid mowing by WCC contractors.
		Action 2:	Gradually remove inappropriate native seedlings in sheltered areas as other plants begin to thrive.
Action 3:		Revisit sites of weed infestations and continue to weed them out.	
Action 4:		Keep Peace Grove grassed area clear as a picnic spot.	
Action 5:		Keep Peace Grove tracks and those around the Lodge in good condition.	
Objective 4:	Monitor regeneration progress, plant survival rate and bird presence.		
	Action 1:	Set up and record position of photo points. Establish time of year to take photos. Begin records.	
	Action 2:	Monitor and record plant survival or demise.	
	Action 3:	Establish places to carry out 5-minute bird counts, and the time of year to do them. Begin records.	

Map of Planting Sites



Area	What Requires Doing	Done
Area 1	Fairly well planted already, can be in-filled with open shrub land species. At this stage leave the rest of this area for memorial plantings.	
	Plant below the Lodge with coastal flax to hold the slope and maintain the view.	✓
	Finish Peace Grove Track and picnic area.	✓
	Relocate recent “inappropriate” plantings in front of Peace Grove seat and replace with suitable species.	✓
	Gradually weed out karaka, lacebark and five-finger hybrid seedlings (keep original specimens as these are commemorative trees).	
	Create hedge to area 2 around the picnic area, to help shelter the forest.	✓
	Prune karos to make more room for planting but maintain “park-like” feel.	✓
	Identify and map/label commemorative plantings.	
Area 2	Create light wells by pruning karo and plant with canopy and understorey species.	✓
	Revisit area to plant hangehange and establish some shining spleenwort and hounds-tongue ferns.	
	Much of the area cannot be planted until the pines trees are removed.	
	Keep an eye on weed invasion from boundary.	
	Maintain Peace Grove track and grassed picnic area.	
	Create light wells by pruning karo and plant with canopy and understorey species.	
Area 3	Plant with non-precious, hardy species to create windbreak.	✓
	Relocate any “inappropriate” species to this area e.g. swamp flax and akeake.	✓
	WCC to prune some lower branches	✓
Area 4	Create light wells to lower area by pruning karo and plant with canopy and understorey species.	✓
	Clear pockets in gorse to upper area and plant with exposure tolerant species. Infill earlier planting patches.	✓
	Gradually weed out inappropriate native seedlings.	
	Release earlier plantings alongside track to beacon.	
Area 5	Plant with flax to improve entrance to the park.	✓
	Plant a suitable tree by the post as a “welcome”.	
	Improve beginning of Kae Miller track.	✓
	Keep weeds down in first part of track.	
	Limit spread of honeysuckle, cape ivy and <i>Tradescantia</i> patches	
Area 6	Create light wells to northern area by pruning karo and plant with canopy and understorey species.	
	Rake up <i>Tradescantia</i> patches and consolidate into a single pile that can be monitored.	
	Deal to any <i>Tradescantia</i> re-invasion.	

	Leave <i>Muelenbeckia</i> patch at Southern end to sort itself out.	
Area 7	Clear pockets in gorse and plant with exposure tolerant species.	
	Create light wells to lower area by pruning karo and plant with canopy and understorey species.	
	Area still to be fully investigated as to planting requirements.	
Area 8	Plant around lookout area with low growing shrubs.	
	Clear pockets in gorse and plant with exposure tolerant species.	
	Area still to be fully investigated as to planting requirements.	

2.2 Weed Pests

Weeds must be monitored and controlled on a regular and ongoing basis to ensure a healthy native plant environment. Any mechanical or chemical weed control is to be undertaken by WCC. However to maximise effectiveness TRiG needs to be able to release weeds from growing seedlings, deal with the hand removal of small infestations or individual plants as they come across them, or gauge when it is appropriate to notify the Council.

Problem exotics in the reserve include boneseed, blackberry, Japanese Honeysuckle, Cape Ivy, Buckthorn, Old Man's Beard and *Tradescantia*. Many of them are at low levels and can be tackled during the course of planting.

Problem natives include karo, karaka, northern lacebark, five-finger hybrids and the odd pohutukawa.

2.3 Animal Pests

Animal pests need to be monitored and controlled on a regular and ongoing basis to ensure a healthy native plant environment. Animal pest control is to be undertaken by WCC. However to maximise effectiveness TRiG needs to advise the Council of any evidence of animal pest presence.

Possoms – Possoms are a serious threat to the reserve. Possoms eat the leaves and shoots and strip the bark of many native plants, consuming large quantities of foliage in a night. They do not graze like other species, but often concentrate their browsing on one tree, causing extensive damage. Possoms also pose a threat to native birds, both through competition for food, and direct predation on their eggs and young. Possum control by Greater Wellington Regional Council began in 2003 and as a result possum numbers are currently at low levels around South Wellington.

Mustelids – Ferrets, stoats and weasels are a serious threat to native fauna. They predate on native insects, lizards and birds. Mustelids pose a particular threat to hole nesting and ground dwelling bird species, as well as eating eggs and young. There is no active control of mustelids.

Rats/Hedgehogs – Rats and hedgehogs predate on ground and hole nesting birds' eggs and young, and eat invertebrates and native lizards. They also threaten native species through competition for food species. There is no active control of rats and hedgehogs.



Left and right: The steep areas of the headland

2.4 Hazard Management

TRiG has a *duty of care* to provide for the safety of its volunteers. Any appointed organizer needs to be briefed and/or trained by WCC in the requirements of OSH and in minimizing any potential hazards. More information is contained in the *Memorandum of Understanding*. (See Appendix 3.6) Site hazards include:

- Uneven ground
- Overhead and rotten branches
- Large pine trees
- Weather conditions (sunburn, dehydration, chills/hypothermia)
- Fatigue
- Poor use of tools
- Inadequate clothing protection

Any hazardous operations such as those requiring mechanical tools, chemical sprays, cliff work or climbing above 1m are to be undertaken by the Wellington City Council.

2.5 Monitoring and Review

Plant survival/loss is to be recorded annually and photo-points established for annual photographic records.

The restoration plan needs to be reviewed every year to adapt to changing circumstances, increased knowledge and experience, or to reflect changes in restoration policy. The restoration history, flora and fauna species lists should be regularly updated.

3.0 APPENDICES

3.1 Native Flora Species List

The Wellington Botanical Society compiled this list on 9 April 2005 during a 5-hour reconnaissance of the headland and point. Taxonomy was updated on 21 July 2010.

*	=	not naturally occurring in Wellington Ecological District.
p	=	planted
sp.	=	species
s.s.	=	sensu strictu
subsp.	=	subspecies
(unc)	=	uncommon

Botanical Name	Maori Name	Common Name
Monocotyledonous trees		
<i>Cordyline australis</i> (unc)	tī kōuka	cabbage tree
<i>Rhopalostylis sapida</i>	nīkau	nikau
Dicotyledonous trees and shrubs		
<i>Brachyglottis repanda</i> s.s.	rangiora	rangiora
<i>Coprosma propinqua</i> var. <i>propinqua</i>		a coprosma sp.
<i>Coprosma repens</i>	taupata	taupata
<i>Coprosma rhamnoides</i>		a coprosma sp.
<i>C. propinqua</i> x <i>C. robusta</i> (unc)		a coprosma hybrid
* <i>Corynocarpus laevigatus</i>	karaka	karaka
<i>Dodonaea viscosa</i>	akeake	akeake
<i>Hebe stricta</i> var. <i>atkinsonii</i>	koromiko	koromiko
* <i>Hoheria (populnea?)</i>	houhere	lacebark
<i>Macropiper excelsum</i> subsp. <i>excelsum</i>	kawakawa	kawakawa
<i>Meliclytus crassifolius</i>		thick-leaved mahoe
<i>Meliicytus ramiflorus</i>	māhoe	mahoe
* <i>Metrosideros excelsa</i>	pōhutukawa	pohutukawa
* <i>Metrosideros kermadecensis</i>	pōhutukawa	Kermadec pohutukawa
<i>Myoporum laetum</i>	ngaio	ngaio
<i>Olearia paniculata</i>	akiraho	akiraho
<i>Olearia solandri</i>	takupurenga	coastal tree daisy
<i>Pimelea prostrata</i>	pīnatoro	NZ daphne
* <i>Pittosporum crassifolium</i>	kāro	karo
* <i>Pittosporum ralphii</i>		a pittosporum sp.
<i>Pittosporum tenuifolium</i>	kohuhu	kohuhu
<i>Pseudopanax arboreus</i> (P)	whauwhaupaku	five-finger
<i>Solanum</i> sp.	poroporo	poroporo
Dicotyledonous lianes and trailing plants		
<i>Calystegia soldanella</i>	panahi	shore bindweed
<i>Clematis forsteri</i>	pikiarero	small white clematis
<i>Muehlenbeckia australis</i>	pōhuehue	pohuehue

<i>Muehlenbeckia complexa</i>	pōhuehue	pohuehue
<i>Parsonsia heterophylla</i> (unc.)	kaihua	NZ jasmine
<i>Tetragonia implexicoma</i>	kōkihi	climbing NZ spinach
Ferns		
<i>Asplenium flaccidum</i>	makawe o Raukatauri	hanging spleenwort
<i>Asplenium hookerianum</i>		Hooker's spleenwort
<i>Asplenium oblongifolium</i>	huruwhenua	shining spleenwort
<i>Asplenium appendiculatum</i> ssp. <i>maritimum</i>		an asplenium sp.
<i>Cyathea dealbata</i>	ponga	silver fern
<i>Polystichum neozelandicum</i> subsp. <i>xerophyllum</i>	pikopiko	a shield fern
<i>Polystichum occulatum</i>	pikopiko	a shield fern
<i>Pteridium esculentum</i>	rārahu	bracken
<i>Pyrrosia eleagnifolia</i>	ota	leather-leaf fern
Grasses		
<i>Festuca multinodis</i>		a festuca sp.
<i>Poa cita</i>	wī	silver tussock
<i>Spinifex sericeus</i>	kōwhangatara	silvery sand grass
Sedges		
<i>Ficinia (Desmoschoenus) spiralis</i>	pīngao	pingao
<i>Ficinia (Isolepis) nodosa</i>	wīwī	leafless sedge
Rushes		
<i>Luzula picta</i> s.s.		woodrush
Monocotyledonous herbs, other than orchids, grasses, sedges, rushes		
<i>Arthropodium cirratum</i> (P)	rengarenga	rengarenga
<i>Phormium cookianum</i>	wharariki	coastal flax
* <i>Phormium tenax</i>	harakeke	swamp flax
Composite herbs		
<i>Euchiton audax</i>		a euchiton sp.
<i>Euchiton gymnocephalum</i>		creeping cudweed
<i>Leptinella squalida</i> s.s.		a leptinella sp.
<i>Raoulia</i> sp. (coastal - see Allan 1961, p. 706)		a mat daisy
<i>Senecio minimus</i>		fireweed
Dicotyledonous herbs, other than composites		
<i>Aciphylla squarrosa</i> s.s.	taramea	spaniard, speargrass
<i>Apium australe</i>	tūtae kōau	shore celery
<i>Colobanthus muelleri</i>		colobanthus
<i>Dichondra repens</i> agg.		Mercury Bay weed
<i>Disphyma australe</i> ssp. <i>australe</i>	horokaka	NZ ice plant
<i>Einadia triandra</i>	poipapa	berry salt bush
<i>Haloragis erecta</i> ssp. <i>erecta</i>	toatoa	shrubby haloragis
<i>Hydrocotyle moschata</i>		hairy pennywort
<i>Linum monogynum</i>	rauhuia	linen flax
<i>Lobelia anceps</i>	punakuru	shore lobelia

3.2 Recommended Species for Planting

The following tables list what grows in young regenerating or exposed sites around the Wellington coast, which are suitable to plant at Te Raekaihau in the next five years. It doesn't include the very rare, or species restricted to sand, or trees that are only present in advanced or old-stand forest. Plants not on the list are either not native to the region, or of the wrong ecosystem. Others not on the list may be a waste of effort, as they will struggle survive in young secondary forest. Original list prepared by *Maggy Wassilieff*.

Exposed/open sites

Latin Name	Common Name	Size	Quantity	Planting Notes
<i>Cordyline australis</i>	Cabbage tree	12-20m	Some	
<i>Carmichaelia australis</i>	Tree broom	4m	Lots	
<i>Coprosma propinqua</i>	Mingimingi	3-6m	Some	Plant where views are
<i>Coprosma repens</i>	Taupata	8m	Lots	Plant in infertile soil (where gorse is growing)
<i>Coprosma rhamnoides</i>		1.5m	Some	Plant where views are
<i>Coriaria sarmentosa</i>	Coastal tutu	1m	Some	Good for holding soil on slips
<i>Dracophyllum filifolium</i>	Inaka	2m	Some	
<i>Hebe parviflora</i>	Tree hebe	7m	Lots	
<i>Hebe stricta var. atkinsonii</i>	Koromiko	2-3m	Some	
<i>Hebe stricta var. macroura</i>	Koromiko	2-3m	Some	
<i>Helichrysum aggregatum</i>		1.5m	Some	
<i>Kunzea ericoides</i>	Kanuka	15m	Lots	
<i>Leptospermum scoparium</i>	Manuka	4m	Lots	
<i>Melicytus crassifolius</i>	Porcupine shrub	1m	Some	Growing naturally on-site, so planting not really necessary. Plant where views are
<i>Melicytus obovatus</i>	Shrubby mahoe	1.5m	Very few	
<i>Myoporum laetum</i>	Ngaio	10m	Lots	Plant in infertile soil (where gorse is growing) Plant 2m away from other plants as it grows large
<i>Myrsine australis</i>	Red matipo	6m	Lots	
<i>Olearia paniculata</i>	Akiraho	6m	Lots	
<i>Olearia solandri</i>	Coastal tree daisy	4m	Lots	Plant where views are
<i>Ozothamnus leptophyllus</i>	Tauhinu	2m	Some	
<i>Phormium cookianum</i>	Coastal flax	2m	Lots	Plant 1 – 1.5m back from tracks. Plant where views are
<i>Sophora molloyi</i>	Cook Str kowhai	1.5m	Some	

Sheltered/understorey sites

Latin Name	Common Name	Size	Quantity	Planting Notes
<i>Prumnopitys ferrugineus</i>	Miro	25m	Very few	Can plant near edge of forest
<i>Podocarpus totara</i>	Totara	30m	Very few	Can plant near edge of forest

<i>Alectryon excelsus</i>	Titoki	10m	Lots	
<i>Brachyglottis repanda</i>	Rangiora	7m	Some	Can plant near edge of forest. Understorey layer
<i>Carpodetus serratus</i>	Putaputaweta	10m	Lots	
<i>Coprosma grandifolia</i>	Kanono	6m	Some	Keep in shade
<i>Coprosma robusta</i>	Karamu	6m	Some	Good hedging at edge of forest. Understorey layer
<i>Dysoxylum spectabile</i>	Kohekohe	15m	Lots	
<i>Elaeocarpus dentatus</i>	Hinau	18m	Lots	
<i>Fuchsia excorticata</i>	Tree Fuchsia	14m	Very few	Plant in damp gullies
<i>Geniostoma rupestre</i>	Hangehange	4m	Lots	Understorey shrub
<i>Griselinia lucida</i>	Kapuka	5m	Some	Good hedging at edge of forest
<i>Hedycarya arborea</i>	Pigeonwood	12m	Lots	
<i>Macropiper excelsum</i>	Kawakawa	6m	Lots	Understorey layer
<i>Melicope ternata</i>	Wharangi	7m	Very Few	Make sure not overtopped
<i>Melicytus ramiflorus</i>	Mahoe	10m	Lots	Growing naturally on-site, so planting not really necessary. Can be planted in open in fertile soil (where broom is growing)
<i>Pennantia corymbosa</i>	Kaikomako	12m	Lots	Needs light
<i>Pittosporum eugenioides</i>	Lemonwood	12m	Lots	
<i>Pseudopanax arboreus</i>	Fivefinger	8m	Lots	
<i>Rhopalostylis sapida</i>	Nikau palm	10m	Some	Plant in damp gullies
<i>Schefflera digitata</i>	Pate	8m	Some	Understorey layer
<i>Sophora microphylla</i>	Kowhai	10m	Some	Enough planted around lodge area. Ensure not overtopped

Photos of less well-known species



Carmichaelia australis



Coprosma propinqua



Coprosma rhamnoides



Dracophyllum filifolium



Melicytus crassifolius



Melicytus obovatus



Olearia paniculata



Olearia solandri



Ozothamnus leptophyllus



Carpodetus serratus



Geniostoma rupestre



Melicope ternata

3.3 Planting Policy

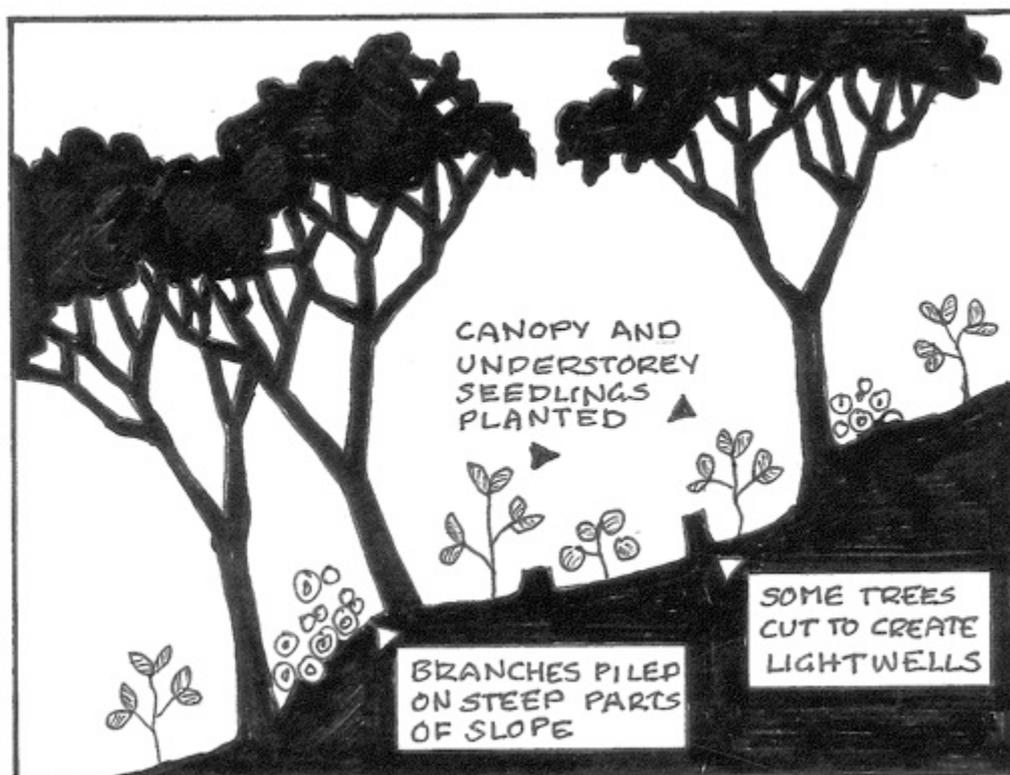
Plant Habitats

The reserve has two distinct habitats so plants for planting are grouped into those being planted under the pioneer forest and those being planted in the open.

The understorey plants need shelter to do well, especially in their early years. Their relatively large leaves need protection from summer sunlight and persistent winds. They are adapted to growing under light shade, but not dense shade, so hence we are thinning the karo forest canopy to create filtered light. Of this group:

- Kawakawa, karamu, pate and rangiora will form the forest understorey layers
- Kohekohe, lemonwood, mahoe, ngaio, pigeonwood, putaputaweta and titoki will form the canopy of the coastal forest
- Miro will (eventually) poke its head out above the wind-shorn canopy

The exposed habitat plants need to be hardy – they have to cope with salt-laden winds, full exposure to summer sunlight and shallow soils. They are characterised by having tiny leaves or tough medium-sized leaves and lots of twiggy branches. Shrubs include: *Coprosma rhamnoides*, *Coprosma propinqua*, tauhinu, coastal tree daisy, koromiko, native broom and the Cook Strait *Melicytus*. Small trees include: cabbage tree, manuka, tree hebe and akiraho. These plants are susceptible to being overtopped by grasses and weeds during the first few summers, but after that they should be able to look after themselves as they develop into a mixed coastal shrub land.



Preparation of Planting Sites

The gorse and broom cover in the reserve can be used to provide protection for new seedlings. Cut a way into the patch and proceed to cut a light well in which to plant up to 4 plants, but be careful of weakening the cover as the wind can destroy it. Use the trimmings to reinforce any shelter hedging. The plants will eventually smother the gorse by cutting out the light it needs.

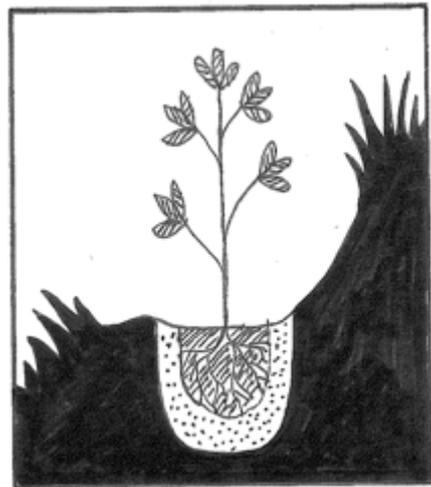
In the karo forest, cut enough of the smaller karo trees to create a filtered light in the area. Do not cut so much that you can see a view or a large patch of sky. Use the trimmings to create terrace like swales on the slope to catch leaf mulch and slow down water run-off. The best places to do this are at the point where a flatter patch starts to steepen. Thus the flatter areas are left clear for planting and the steeper ones are covered to help resist erosion. Cut off larger sections of trunk for use as firewood in the Lodge and cut the remainder sufficiently to reduce the overall volume of the cuttings.

Planting methods

In the open it is important to plant densely – a metre apart. The plants will then shelter each other and a fast growing canopy will avoid weed problems. However, ngaio end up too big for this spacing (2m is better), so it is best to plant them in clusters with karamu in the holes to either side. That way the ngaio do not crowd out any other tree.

In the sheltered areas the spacing can be up to 2m. Space the canopy trees according to their eventual size (see recommended species charts) and intersperse with the understorey plants.

When planting, dig a hole that is a bit deeper than the root area of the tree and make the hole wide enough for some loose soil to be placed around the tree. The top of the potting mix around the tree should be placed slightly lower than the level of the surrounding ground (after pushing any loose leaves away). This encourages rainwater to collect around the tree, which can be very important in summer and autumn. In particularly windy areas the plant can be placed even deeper for shelter. Once the tree is in its hole, push loose soil around the tree on all sides, until there is soil up to the level of the potting mix all around the tree. Use the heel on your shoe to press down the soil around the tree, to help the tree settle firmly into the ground.



Plant Sources

Our plants are being sourced from the WCC nursery at Berhampore, the Forest and Bird Nursery at Karori, and sundry local backyards. Wherever possible we are using eco-sourced plants for new plantings.

Plant ratios

To aid the process of getting the right plants in the right places particularly during the heat-of-the-moment rush on planting days we have developed a system of setting plants in the right proportion and distribution on the WCC plastic trays that a volunteer can carry off and plant without complex instructions or intense supervision. The tray layout is as follows:

Plants for sheltered/understorey areas (tray layout)

kawakawa	rangiora
kanono	hangehange
kapuka	fivefinger
kohekohe	pate

kawakawa	rangiora
kanono	karamu
kapuka	kaikomako
titoki	hinau

kawakawa	rangiora
putaputaweta	wharangi
lemonwood	fivefinger
totara/miro	pigeonwood

Plants for exposed areas (tray layout)

taupata	mahoe
kanuka	ngaio
cabbage tree	hebe parv.
hebe str.	olearia sol.

taupata	mahoe
manuka	red matipo
cabbage tree	tree broom
hebe str.	olearia pani.

taupata	karamu
manuka	red matipo
coprosma pro	hebe parv.
olearia sol.	olearia pani.

3.4 Weed Control Policy

Native Weeds – Many of the older plantings include native plants that are not endemic to the area and have since become problem weeds. The original plantings have historic or emotional significance, and we do not wish to remove them. However, we will dispatch any seedlings from these trees.

Exotic Weeds – Many exotic weeds are at a reasonably low level and can be tackled during the course of site preparation and tree planting. The size and position (cliff faces) of some infestations however are beyond our means and will need to be dealt with by WCC.

The Kae Miller Trust and TRiG would like a permanent no-sprays policy in the Park, in line with the philosophy of Kae Miller and true sustainability. Many of the herbs in the Park are edible and we wish to promote this. To this end we are developing ways of dealing with weed infestations manually.

Weed control methods and timing

Small populations of invasive weeds that can be easily treated are the highest priority. For the most effective control weeds need to be tackled at the source first. This includes:

- The felling of any seed trees
- Starting at the uppermost infestation in a stream or gully system
- Reducing open areas with intensive native plantings
- Providing more intensive control along boundaries and tracks

After seed source trees/plants have been removed the juveniles and seedlings need to be tackled. Ongoing maintenance may be required to control species that drop large quantities of seed that will continue to germinate for many years.

The amount, type and regularity of control is dependent on the type of weed. The main features to identify what control is required are:

- Degree of shade tolerance – will die out once the canopy outgrows them. Releasing around trees is required to prevent crowding out;
- Reproduction by seed – flowers heads can be cut (annually) before seeding if there is not enough time or resources to remove the plant fully;
- How readily the seed is dispersed i.e. by numerous species of bird or just wind dispersed;
- Ease of removal;
- Ease of re-growth after treatment;
- Maturity time to fruiting.

With the health of the natural environment in mind, the priorities for the type of weed control in decreasing order are:

- Mechanical control ie cutting, uprooting, ring-barking;
- Biological control ie release of insects/fungi that control a weed;
- Herbicides use, preferably specifically targeted rather than broadcast.

Any weeds that are likely to continue growing or spread from dump sites must eventually be removed completely from the reserve. Given the logistics of major weed removal, we are using temporary measures of dumping uprooted material on existing infestations and gradually reducing the weed footprint to a manageable level.

3.5 Planting Record

2011

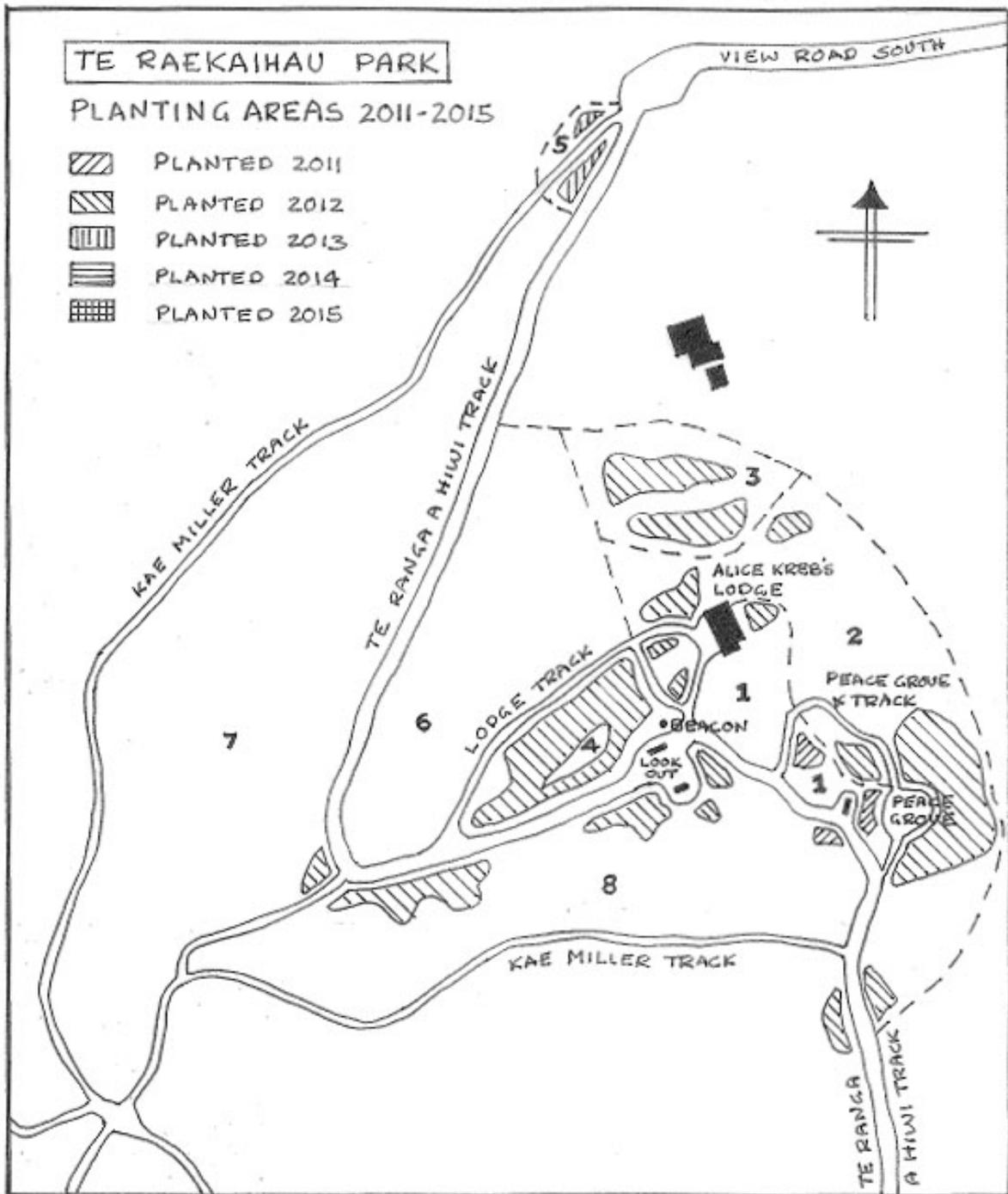
Area 1	Memorial grove for Robert Logan	24
Area 2	Peace Grove picnic area planting	73
Area 2	Peace Grove planting	57
Area 3	Transfer of “wrong species” plants from picnic area (41) and further planting of common species	10
Total		264

2012 (approximate numbers only)

Area 1	Slope below lodge (flaxes)	25
Area 2	Below and around picnic area in sheltered areas, and between lodge and pines (Area 3)	250
Area 4	Cleared area at top end and south flank of Area 4	90
Area 8	Around lookout	190
Area 4	Under in sheltered area	55
Area 8	Lower end near Kotare track	90
Area 3	Near Lodge	30
Total		730

2013

Area 5	View Road entrance and track (flax + 4 taupata)	84
	Pines Valley (totara)	8
Area 8	Near Kotare Track corner (flax)	25
Area 7	Track edge above gate (6 lemonwood, 2 karamu, 5 cabbage trees)	13
Area 4/6	Rangiora on Lodge Track edge	5
Total		



3.6 Memorandum of Understanding

Kae Miller Trust and Te Raekaihau Restoration Group

MEMORANDUM OF UNDERSTANDING

Between Wellington City Council, Parks and Gardens (WCC) and the Kae Miller Trust and Te Raekaihau Restoration Group (TriG)

1. PURPOSE

This Memorandum of Understanding (MOU) recognises the partnership between the Wellington City Council, Parks and Gardens (WCC) and the Kae Miller Trust and TriG for the purpose of jointly realising the conservation and restoration of the reserve, specifically to try to bring back the coastal forest once typical of the area. This is not a legal contract, but intends to enhance the partnership by clarifying the commitments, roles and responsibilities of each party.

2. SITE DESCRIPTION

2.1 Status – Scenic Reserve (gazettal in process)

2.2 Location – Te Raekaihau Headland, Houghton Bay

2.3 Map – simple location map attached as Appendix 1.

3. SHARED OBJECTIVES

- 3.2.1 To protect and encourage the regeneration of naturally occurring native plant species.
- 3.2.2 To carry out revegetation programmes to speed up the natural process of regeneration.
- 3.2.3 To minimise and control the adverse effects of plant pests and animal pests and fire.
- 3.2.4 To use and enjoy the Reserve for passive and informal recreation and for its natural character and views.

4. WCC AGREES TO...

- Recognise Kae Miller Trust and TriG as key community stakeholders and partners with WCC to implement the agreed objectives.
- Designate a specific Council Officer (designated Park Ranger) to be the primary contact with the group and liaise closely with the group.
- Provide a mutually agreed number of eco-sourced native plants each year upon request.
- Provide a seed collection permit if Kae Miller Trust and TriG wish to collect seed from WCC land with the purpose of growing plants for the local reserves.
- Provision/facilitation of training and educational material to promote planting, pest control, community based monitoring and other WCC environmental initiatives.
- Provision of practical tools and supplies needed to carry out the agreed objectives in accordance with the recognised roles, and as resources allow.

- Recognise that Kae Miller Trust and TriG may obtain resources (especially finance, personnel and equipment) from a third party to advance the agreed objectives in consultation with WCC.
- Carry out any tasks that require the use of machinery or targeted application of agrichemicals which are necessary to achieve the agreed objectives as soon as reasonably practicable.
- No spraying on the whole of the park including the Te Raekaihau headland, except for gelling of (1) old mans beard; (2) honey suckle. This will be reviewed at each yearly meeting.
- Carry out the following specific tasks to implement the objectives as soon as reasonably practicable: tree care (to visit pines no less than annually), plant/animal pest reduction, manage recreational use, promotion, mitigation of external concerns/damage and administration issues. The execution of these tasks will be discussed regularly between WCC and Kae Miller Trust and TriG.
- Consult with the group on any significant proposed work in the reserve.
- Attendance at regular meetings of Kae Miller Trust and TriG.

5. KAE MILLER TRUST & TE RAEKAIHAU RESTORATION GROUP AGREES TO...

- Have an ears and eyes role in general care of the reserve, including safety issues, and close liaison with WCC for mitigation as required.
- Carry out the following specific tasks within the group's capability to implement the objectives as soon as reasonably practicable: tree planting/care, rubbish collection, pest plant reduction (weeding and releasing), and administration tasks as required.
- Plant and care for the plants provided by WCC, until they are established. Kae Miller Trust and TriG may also supply trees grown by themselves for planting in the reserve; these trees must be grown from eco-sourced seed.
- For safety reasons, **not** allow volunteers to use mechanical equipment (e.g. "power barrows", weeders or chainsaws). Such work will only be carried out by WCC staff, contractors, or other persons approved in writing by WCC.
- Unless an emergency situation, inform WCC at least four weeks ahead of any mechanical works which may be required.
- Supply an annual estimate of volunteer hours carried out.
- Conduct regular meetings of the group, to carry out all business necessary.
- Provide public contact details so that other volunteers can get in touch.
- Work closely with the designated Park Ranger to carry out tasks required, including advising these officers if they are undertaking a specific assignment with other WCC staff.
- Be an expert local voice to advise/advocate to WCC and community on reserve management issues.

6. HEALTH AND SAFETY

The overall responsibility to ensure that hazards to reserve users are minimised within the natural wilderness character of the reserve rests with WCC. WCC must take all practicable steps to ensure volunteers and other reserve users safety and hence the inclusion of the following section.

6.1 Working bees

- There must be a nominee of the Kae Miller Trust and TriG on site during working bees whose role is to oversee site safety for the duration of the working bee. This person must have completed the WCC health and safety induction process.
- Any health and safety issues or concerns can be escalated to the WCC Park Ranger.
- The Kae Miller Trust and TriG nominee will be responsible for carrying out the health and safety brief to volunteers at the start of each working bee, referring to the Site Safety Assessment (see below) and Health and safety guide for Wellington City Council community environmental projects.

6.2 Requirements for all volunteers

- Volunteers will ensure that they:
 - Perform the required task safely.
 - Keep an eyes-and-ears approach for hazards at all times and report to the appropriate person.
 - Let the Kae Miller Trust and TriG nominee know if they feel they cannot safely undertake a task.
- No volunteer is allowed to work if they are under the influence of drugs or alcohol.
- All volunteers are required to be continually aware of each other's work practices. If any volunteer considers an operation by a single operator or by a group to be hazardous they should stop that person or persons from working and contact the Kae Miller Trust and TriG nominee immediately. This person can then re-evaluate the situation and explain any changes to be made to all volunteers.

6.3 Hazard Management

- There will be a Site Safety Assessment (SSA) in place prior to work commencing.
- All volunteers will be briefed by a nominee of the community group on the content of the SSA prior to them commencing work.
- Community groups are expected to be involved in this process and remain aware of the contents of the SSA.
- An annual review of the SSA will be carried out on site in consultation with WCC.
- All new hazards that are found should be acted on and must be reported to the nominee and recorded in the SSA.

6.4 Accidents and emergencies

- All accidents or near misses of a serious nature must be reported to the WCC Park Ranger as soon as practicable.

- Any accidents involving serious harm must be reported to the WCC Park Ranger on duty immediately via the contact centre: **499 4444**
- Where a person has been seriously harmed, no person shall alter the accident scene without the permission of the Department of Labour, except to:
 - Save life or prevent harm to any person.
 - Maintain access for emergency services.
 - Prevent serious damage or loss of property
- Any accidents involving serious harm will need to be investigated by WCC with the cooperation of the volunteers.
- Wellington City Council will supply first aid kits and can assist with first aid training if requested. It is recommended that each group have a designated person on site who has basic first aid training and is responsible for the first aid kit.
- In order to obtain emergency help in the event of an accident a cell phone must be available on site at all times, or an alternative strategy e.g. a buddy system must be implemented.

6.5 The use of contractors by volunteer groups

- All contractor work must be approved by WCC prior to commitment to the work.
- Contractors must meet Parks and Gardens compliant contractor status before work can be undertaken.

7. TERM OF MOU

This Memorandum of Understanding will be reviewed annually.

8. AGREEMENT TO MOU

Signed for WCC:

Name _____

Title _____

Date _____

Signature _____

Signed for *Group Name*:

Name _____

Title _____

Date _____

Signature _____

3.7 History of the Headland

This section is still being developed, but items to be researched include:

- Early Maori history – waiata history stops in the 1500s, possibly an earthquake or tsunami wiped out local occupation.
- Possible burial caves that were wiped out in the 1855 earthquake
- Other sites of Maori significance
- Original ownership and gifting of land as reserve/defence land
- Home Guard activity during the war
- Involvement of locals in the care of the land including Kae Miller (see below).

Kae Miller and the Alice Krebs Lodge

A special feature of the Park is the Alice Krebs Lodge and the story of how it came into existence through the efforts of the View Road Park Project Society and its founder and champion of environmental and peaceful causes, Kae Miller.

The Alice Krebs Lodge was designed as a retreat for those seeking quiet contemplation or spiritual practice, which also encompassed Maori customs and values. The Society also wanted it to have other uses such as a workshop for cottage industry crafts and as a residence for a park caretaker.

Originally 9.3 hectares were leased to the Society for a peppercorn rental. Later an agreement was reached that the Council's Parks and Recreation Department would take over the administration of the bulk of the site leaving one hectare around the Lodge.

At the time when the park was established the site was mostly overgrown by gorse. One of the aims of the Society was to promote conservation and actively participate in regeneration of lost green spaces. Coming home, Kae used to walk up from Princess Bay to the lodge, planting trees along her way, and she created a Peace Grove with trees planted as Memorials to Peace or loved ones.

The Lodge is a simple 30 m² one bedroom, timber frame building located just below the ridge line of the eastern face of the hilltop. It is connected to electricity, mains water and sewage. Heating is a by wood burner equipped with a "wetback" system for hot water. Since Kae's death in 1994 her vision and the day-to-day task of looking after the building and organising its use by others has been led by Brenda Cheyne, who lives nearby.

For a fuller history go to www.houghtonvalley.org.nz, click on the "Playing: projects created by locals" dot, on the Kae Miller Trust dot and the Kae Miller photo.



Kae Miller outside the Alice Krebs Lodge shortly after its opening in 1985