

Rarangi Landcare Group Beach Management Plan

December, 2007



Rarangi Landcare Group Incorporated

Department of Conservation

Marlborough District Council

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1.0 Summary

In the seven years since the Rarangi Landcare Group was formed, tremendous progress has been made towards its mission of; “restoring a Rarangi coastal ecosystem, including native foreshore plants and associated insect, lizard and bird species.”

Some native foreshore plant species found at Rarangi are rare and/or threatened and associated moth species are rare and endemic to the area.

Now, plants which evolved to live at Rarangi and their associated insect communities are reclaiming their place on the foreshore. The garden plants which replaced them are being gradually removed.

The Rarangi Landcare Group has now reached a stage with this restoration project when it can look back with some satisfaction. It is also looking forward, through this Management Plan, to identify ways that the gains made can be consolidated and the successes built on.



Landcare action on the beach - preparing an area for planting in native species

2.0 Introduction

Rarangi Beach hosts a large number of plants especially adapted to live in this harsh, pea-gravel and sandy beach environment with their associated insect communities, as well as lizards and birds.

These plant and animal species have all but disappeared from the northern area of the beach, above Blue Gum Corner due to pressures from the adjacent residential subdivision, high visitor numbers and introduced pests.

Since 2000, the Rarangi Landcare Group (comprised of local residents) has restored native plant species in plots along the foreshore with support from the New Zealand Landcare Trust, Department of Conservation, the Marlborough District Council, the Outward Bound Trust and local schools.

The purpose of this management plan is to set out the future goals of the Rarangi landcare group over the next ten year period. This will help to safeguard the project's sustainability and ensure a strategic approach to the restoration of the foreshore.

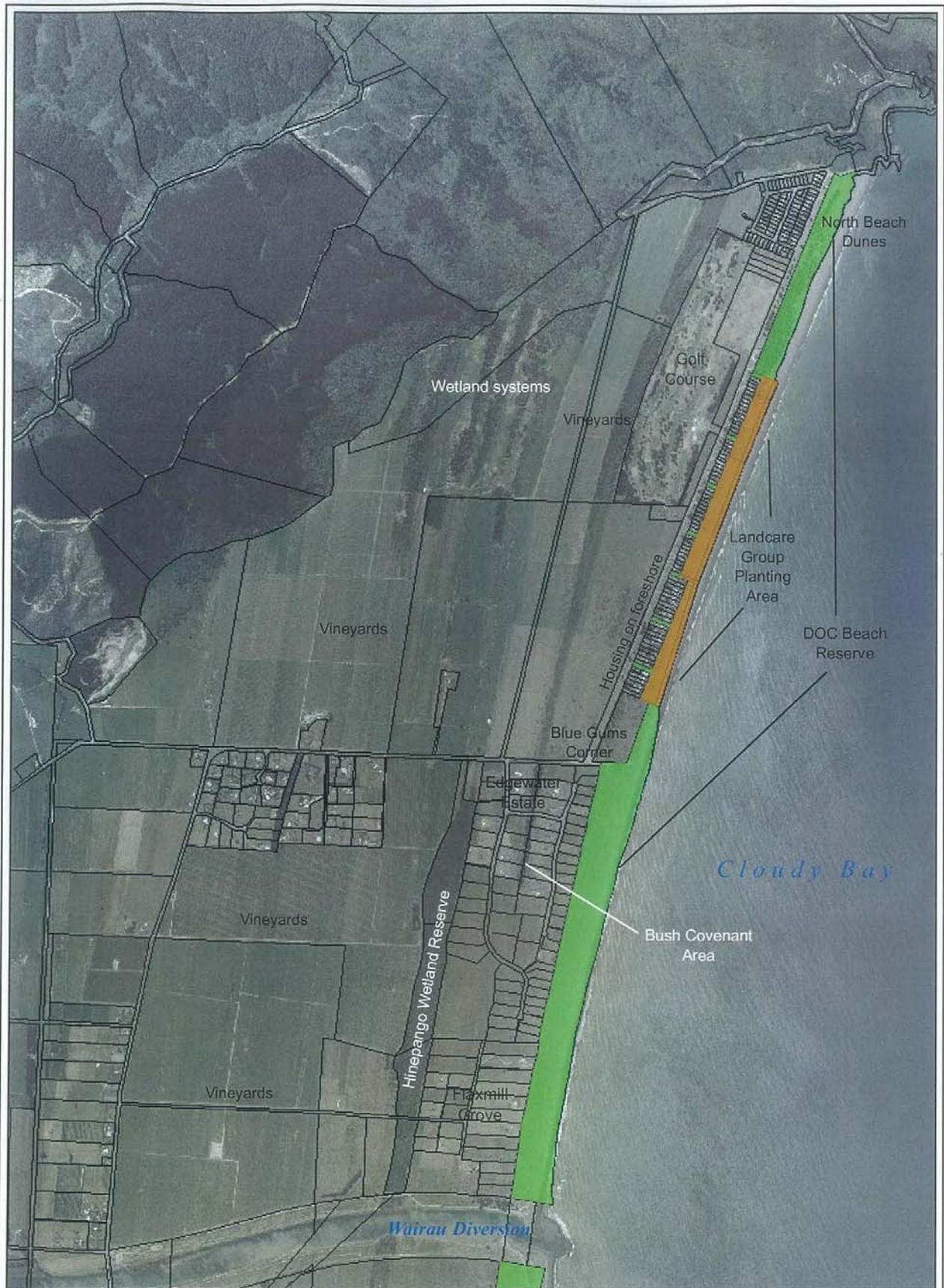
3.0 The Rarangi Landcare Group

The Rarangi Landcare Group was formed in 2000, following a well attended public meeting where threats to native foreshore plant and animal species were discussed. This was chaired by a representative of the New Zealand Landcare Trust supported by representatives from the Marlborough District Council and Department of Conservation.

The Group has planted over 7500 locally sourced native plants in more than 25 areas along the foreshore, on public conservation land administered by the Department of Conservation. These are established and maintained both at working bees and by individual members.

The Department of Conservation takes an active role in the Group as does the Marlborough District Council and New Zealand Landcare Trust. Practical support has come from the Outward Bound Trust and students from local schools.

The Group is an incorporated society, holding regular meetings as well as working bees. It has successfully applied for funding from a number of sources including the World Wildlife Fund.



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Rarangi Landcare Group - Overview Map





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Rarangi Landcare Group - Area Plantings @ December 2006

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4.0 Scope of the Management Plan

The Management Plan will provide strategic direction for the restoration of the Rarangi beachfront area, running from the northernmost house in the original residential subdivision to the southernmost house, just north of Blue Gum Corner, as shown on the following aerial maps. The focus area for plantings is the relatively flat and stable area above the reach of storm tides, ending just short of the boundary with beachside residential sections.

The planting area is public conservation land administered by the Department of Conservation. Rarangi Beach to the north and south of the beachside settlement is outside the scope of this Management Plan.

The stretch of beach from Blue Gum Corner to the Wairau Diversion still contains remnant populations of native and plants and insects, some found only at Rarangi. The Department of Conservation is monitoring key values via photo-points and insect surveys. Ultimately, a 'sister' Landcare Group could be formed to help preserve the beach in front of the Edgewater and Flaxmill Grove subdivisions, as well as the Department of Conservation-managed Hinepango Wetland Reserve behind.

While ecological restoration of the beach area north of the Rarangi Landcare Group's planting area (from the last beachside residence to the Monkey Bay carpark) would be desirable, this is beyond the current resources of the Group.

5.0 Vision

The Rarangi Landcare Group's mission is;

"To restore a Rarangi coastal ecosystem, including native foreshore plants and associated insect, lizard and bird species."

Some native foreshore plant species found at Rarangi are rare and/or threatened and associated moth species are rare and endemic to the area.

The Group proposes to work towards restoring the foreshore in the restoration area to something resembling its state pre European settlement by plantings, weed control and pest control. Restoration will be a significant contribution to natural habitat in the Cloudy Bay area, will offer an example of how restoration can be achieved and provide an asset to Marlborough in general and also New Zealand. This is especially relevant in a time when increasing coastal subdivision poses a threat to natural beach environments.

Working to a ten-year plan, the Rarangi Landcare Group, Department of Conservation and Marlborough District Council have a shared vision of scattered plantings of native species plus two to four larger focus areas. The plantings will be located between the storm-tide level of the beach and residences.

Plant material will continue to be locally sourced, much of it from established plots.

At least 50% of the restoration area cover will be native plants. Exotic cover will be reduced down to 50%, with garden escapees targeted as well as weed species. A walkway, subtly suggested with strategically placed driftwood and stones, will wend its way around the plantings.

The vision is that the majority of Rarangi residents will be actively involved in the project with plantings in front of their homes, or otherwise supportive. Ideally, iwi could be involved.

As sufficient funds become available, a booklet could be printed to support the restoration project including a summary of this Management Plan and a list of native species suitable for planting at Rarangi along with information on weed identification and control.

The Rarangi Landcare Group's success will have inspired the formation of a similar group for residents living south of Blue Gum Corner. Membership will have grown to a level where restoration is extended to the north, towards the Monkey Bay track carpark.



An area of the beach showing well established planting with weeds well under control.

6.0 The Rarangi area

6.1.1 Natural history of Rarangi

Rarangi's uniqueness begins with its geology. When looking down on Rarangi from the air alternating wetland-filled troughs and dry post-glacial beach ridges can be seen, extending inland for four kilometres. Associated with these "hummocks and hollows" are specialist dryland and wetland plant and animal communities.

Pre European settlement, beach gravel ridges prevented runoff from the northern hills, rainfall, floodwater and groundwater from flowing freely to the sea. The relatively flat area spread the water wide in natural wetlands which eventually flowed into the Wairau River, inland. (Dave Barker, 2003).

With the change to pastoral farming, these areas were gradually drained until today, very few wetlands with associated native plant and animal communities remain.

6.1.2 Flora and fauna

The exposed, partially vegetated Rarangi coastline hosts valuable communities of native plants supporting insect species adapted to live in this environment.

From October 1998 to March 1999, an entomological survey discovered there were at least 36 moth species living on the Rarangi foreshore, seven either endemic to Cloudy Bay or not previously found there. This included a new species; the Cloudy Bay mat daisy jumper (*Kiwaia* "Cloudy Bay"), living on patches of scab weed (*Raoulia australis*) growing along the foreshore. A second new species – a variety of stone moth, described as acutely threatened and nationally endangered, – was found on lichen encrusted shingle beds. (Dugdale, 2001).

Since the last ice age, these moths have survived human use of the area, from the moa hunter era to the coastal subdivisions of today. The key to these and other moth and insect species' survival is that healthy populations of the plants which support them remain.

The area supports large populations of several species of plants on the national threatened plant list; sand tussock or hinarepe (chronically threatened, gradual decline) and *Muehlenbeckia ephedroides* (at risk, sparse). Other stand-out species include silvery sand grass (*Spinifex sericeus*) which produces large spiny ball-like seed heads; scab weed (*Raoulia australis*) which forms hummocks that support *Kiwaia*; the tiny native daphne *Pimelea urvileana* and a prostrate form of matagouri.

Early residents of the beach development remember that in the early 70s the beach was covered with sprawling matagouri – nothing higher than a foot – progressively removed as the beach was settled. The odd bush remains and matagouri is still found between Blue Gum Corner and the Wairau Bar. Prior to the area being settled and farmed the range of coastal plants mentioned above would have occurred on the beach area.

The stretch of Rarangi foreshore covered by this Management Plan is the most degraded, because of the common presence of a range of exotic (non native) plants which have spread from the Rarangi settlement, some becoming well established and self seeding. These include the exotic ice-plant, hedge Artemisia (*Artemisia arborescens*), lupin and gazania, and in most places they have almost completely taken over the beach area. Some native vegetation is able to co-exist with the exotics (for instance shore bindweed (nihinihi, *Calystegis soldanella* and sand sedge) but most cannot compete and are now only found on the beach south of Blue Gums corner.

With a concerted effort from the Department of Conservation and the Rarangi Landcare Group, the density of exotic weeds has reduced and proportion of native plants increased in places.

Birds observed on the beachfront include black-backed and red-billed seagulls, pied shags, occasionally banded dotterel, bellbirds, fantails, tui, hawks, starlings, skylarks, California quail, chaffinches, welcome swallows, blackbirds, sparrows, hedge sparrows, song thrushes, silvereye, kingfisher and occasionally magpies. A number of these birds are attracted by the adjacent gardens.

There are records of four species of lizard being present at coastal Rarangi, notably the Marlborough mini gecko (*Hoplodactylus* sp. "Marlborough mini"). Common skinks are still regularly seen.

6.1.3 People at Rarangi

Three iwi - Rangitane, Ngati Rarua and Ngati Toa Rangitira - have a long-term interest in the coastal Wairau area. The combined coast and wetland environment was a rich resource.

Remnants of the Marshlands Flaxmill, built in 1888, are a reminder of the once thriving flax industry that was a major contributor to the Marlborough economy following European settlement. However, most of the wetlands where flax grew were gradually drained for pastoral farming.

Historically, the land to the west of Rarangi Beach has been extensively farmed. Areas of wet, heavy soils to the north have tended to be in dairying while sheep and cattle were run on the drier, stony areas further south with the Chaytor family's Marshlands Station the major run.

Recently, grape growing has rapidly expanded in the area, increasing the demand for water.

Changes to hydrology have resulted from drainage and diversion of the Pukaka, progressive drainage of the Rarangi Beach Ridge wetlands, installation of pumping stations, increased take for the Rarangi Golf Course, residents and horticultural use and transpiration from willows (John Preece).

An aerial photo of the Rarangi coast, dating from 1948, shows that the current settlement area was dominated by a large block of pine trees. Their wilding offspring are the old man pines of Rarangi today.

Subdivision of coastal sections at Rarangi began in 1959 with the first houses built in the late 1950's. A 1973 photo of the settlement area shows not more than nine residences, plus the beginnings of the golf club facility. Increasing desirability of coastal living saw residential development increase until now there are just over 70 houses in the settlement.

Recreational activities occurring along this coastline include walking, dog exercising, fishing, four-wheel driving, bird watching and beach combing.

South of Blue Gum Corner (outside the area covered by this Management Plan), the Edgewater and Flaxmill Grove subdivisions – sandwiched between the beach and the Hinepango Wetland Reserve – have been subdivided off with residential sections being marketed and gradually settled.



Photo supplied by John Hipkins. 1973 - early days of the golf course and housing.

6.1.4 Management

The Department of Conservation manages the strip of conservation land that runs the length of the Rarangi Landcare Group's planting area (as shown on the previous aerial).

The role of the Department of Conservation in managing public conservation land is prescribed by two main Acts of Parliament; The Conservation Act 1987 and the Reserves Act 1977. The management of public conservation land on the Rarangi coast must be consistent with these acts as well as the Conservation General Policy 2005 and the Nelson/Marlborough Conservation Management Strategy 1997 and relevant requirements of the Resource Management Act 1991 administered by the Marlborough District Council.

The Department of Conservation is concerned about increasing development putting pressure on the coastal environment at Rarangi. A balance needs to be found between meeting human needs and protecting the significant natural and historic values of the area; those very values which attract people here in the first place.

The Resource Management Act 1991 charges the Marlborough District Council with safeguarding, maintaining and protecting indigenous biodiversity and ecosystems in the Marlborough, including areas of significant native vegetation and habitats of native fauna.

The Department of Conservation and Marlborough District Council are both strong supporters of the Rarangi Landcare Group, and see themselves as partners in members' endeavours to restore the stretch of beach in front of their homes.

7.0 The Management Plan

“A regionally significant issue is a matter of interest or concern to the community that affects some aspect of the natural and physical resources of Marlborough. The extent to which an issue is significant depends on values held by the community in relation to resources, activities and the environment.” (Marlborough Regional Policy Statement, 1995)

For the purpose of this project, the following issues have been defined by the Rarangi Landcare Group, DOC and the Marlborough District Council as being significant.

1. **Community ownership and participation**
2. **Highly modified landscapes**
3. **Native plants and animals**
4. **Weeds and pests**
5. **Planting and maintenance strategy**
6. **Funding and support, publicity and communication**
7. **Monitoring**

7.1 Issue 1 Community ownership and participation



A landcare working bee - preparing an area for planting



Outward Bound groups have regularly helped out with landcare work at Rarangi

7.1.1 Objectives

- (a) To continue efforts to involve a greater proportion of the community in the Rarangi Beach ecological restoration project and increase support from the remainder. This should secure the long-term survival of the Rarangi Landcare Group, thus ensuring continued expansion and maintenance of the planting areas. Vandalism would be minimalised, due to community vigilance.
- (b) To encourage iwi involvement with the Rarangi Beach restoration project. This would provide cultural as well as ecological impetus for the restoration project.

7.1.2 Recommendations

- (a) That the Rarangi Landcare Group has the structure in place and membership depth to ensure there are people prepared to step forward and take more responsibility as others step back.

Methods for ensuring the long-term strength of the Group could include;

- Regularly evaluate the Landcare Group to ensure it doesn't become over-reliant on key people. This could be done by spreading responsibilities, rotating where meetings are held or meeting in a neutral space and actively encouraging new membership.
- Appoint coordinators within the Group, each responsible for a section of beach. The role could include letting "their" residents know about the Rarangi Beach Restoration Project, dropping off plants, providing information and advice on planting and maintenance and arranging help from other Rarangi Landcare Group members, if needed.
- A door-to-door or written survey to a sample population of the Rarangi community could help discover what would encourage more people to become involved. Meeting at a different time of day or days of the week? After-work rather than weekend planting sessions? Home visits by members? The opportunity to establish and maintain a planting in front of their house, with support from the Landcare Group or a key member? Improved awareness?
- Non members – especially new residents – should be canvassed for support. There is certainly interest out there which hasn't yet been tapped.

- (b) That the Rarangi Landcare Group continues to demonstrate tangible progress to Rarangi residents and the wider community, to promote buy-in.

Methods to achieve public awareness could include;

- Education about beach ecosystems and the plantings via on-site information panels and species tags
- Continuing the Rarangi Landcare Group newsletter, published by Trudie Lasham since 2001 and distributed to all Rarangi residents, the Department of Conservation, Marlborough District Council, New Zealand Landcare Trust, World Wildlife Fund and other interested parties such as Outward Bound, iwi and local schools. A back-up person could be encouraged to "learn the ropes" of the job, to take pressure off the editor and ensure continuity.
- Continue to organise and publicise community working bees and interesting events, which could include a workshop to launch this Management Plan.
- Develop a relationship with local media, informing them about the beach restoration project and keeping them in touch with progress and events. Send contacts copies of the Rarangi Landcare Group newsletter.
- Maintain existing links with the Rarangi Residents' Association via providing copy for the newsletter and sending a Rarangi Landcare Group representative to meetings.
- A final draft of this Management Plan should be work-shopped by core Rarangi Landcare Group members and stakeholders (the Marlborough District Council, Department of Conservation, local schools, Outward Bound, iwi) then the final version released at a launch event in 2008. This would feature relevant speakers and workshops.

- (c) That the Rarangi Landcare Group continues to keep the local community onside, while being advocates for the beach environment.

Methods for achieving this could include;

- Continuing to promote the use of existing vehicle tracks while encouraging respect for plants on the beach.
- Ensuring that plantings do not interrupt residents' views, e.g. ensure taller species like ngaio and even shrubs are planted in clumps in locations where they will not interfere with residents' outlook. This is preferable to scattered individual plantings, achieving a more natural look and increasing survival.

(d) That the Rarangi Landcare Group encourages iwi involvement.

Ways of involving iwi could include;

- Identifying key iwi contacts to consult on this Management Plan and ongoing cultural issues.
- Ask iwi about the cultural significance of this stretch of beach and whether there are any issues around existing and planned plantings. Do they have any authentic beach species they would like included, for example pingao which is used in weaving? Should there be a cultural dimension for example the collecting of seed, planting?
- Iwi should be invited to appoint interested representatives to the Rarangi Landcare Group, or to otherwise offer points-of-contact.

7.2 Issue 2 Highly modified landscape



Vehicles on the foreshore and dune areas of the Rarangi beach can cause progressive erosion and damage native plants

Ironically, Rarangi residents and people who recreate on the beach highly value this landscape yet can – sometimes unwittingly – damage the environment they so enjoy.

The northern area of Rarangi foreshore covered by this Management Plan is highly modified. This stretch of beach has been settled since the first houses were built here in the late 1950s. There are now just over 70 homes adjoining the beachfront side from the northernmost house to Blue Gum corner. Rarangi township extends to the original settlement to the north, on the west side of the road, and to the new subdivision to the south.

The coastal species which naturally grew here had largely disappeared when the project began, apart from sand tussock, native daphne and other scattered plants. They were being pushed out by garden escapees which are still prolific, as well as common weed species. Residents' gardens are sometimes encroaching onto public land at the back of their houses.

Also, proximity to the carpark and campsite at the northern end of the beach encourages high usage of this section by walkers and 4WD vehicles. Access is along the beach, from the camping ground to Blue Gum corner; via road-to-beach access-ways and from the back of residents' sections.

Some residents are concerned that the Rarangi Landcare Group's 'weeding' of the beach opens it up, improving vehicle access. This is one reason that driftwood exclosures have been placed around plantings, to exclude vehicles and reassure concerned residents. Ideally, these barriers should be set back from plants as they provide cover for insect and lizard predators.

Stones have also been placed near plants so they can be easily found.

In the past, dumping and burning of rubbish on the beach has been a problem. However, the Department of Conservation now prohibits fires on the beach.

7.2.1 Objective

- (a) To progressively enhance natural values on the beach
- (b) To discourage vandalism of plantings and signage

7.2.2 Recommendations

- (a) Set and work towards a realistic goal of having 50% of the beach's ground cover being native species, in the 10 years covered by this Management Plan.

Methods for achieving this could include;

- Acknowledging that the area of beach being restored by the Rarangi Landcare Group will not be returned to its original state, certainly within the 10-year term of this Management Plan if ever!
- Measure and record what proportion of the beach's ground cover is native species and regularly monitor any change.
- Expand plantings towards the 50% goal, while ensuring they do not grow beyond the Rarangi Landcare Group's ability to care for them.

- (b) Long-term, aim for a more natural look for the plantings.

Methods for achieving a more natural look, over time, include;

- Realising that appreciation of the natural landscape will grow as species begin to spread naturally.
- Continue to guide walkers around, rather than through plantings by strategic placement of driftwood to create subtle paths, while working towards eventually maintaining a natural rather than horticultural look. This will introduce residents' and walkers' awareness of native species while minimising damage to plantings. It will also reassure residents that by removing weeds, the Landcare Group is not opening up vehicle access.

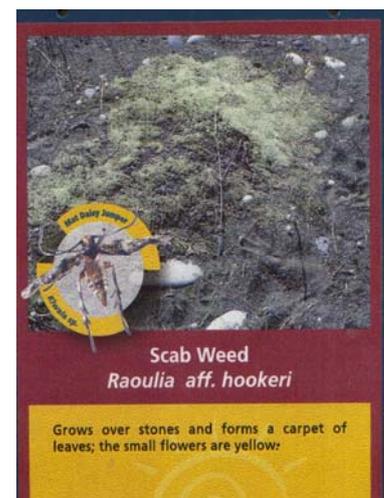
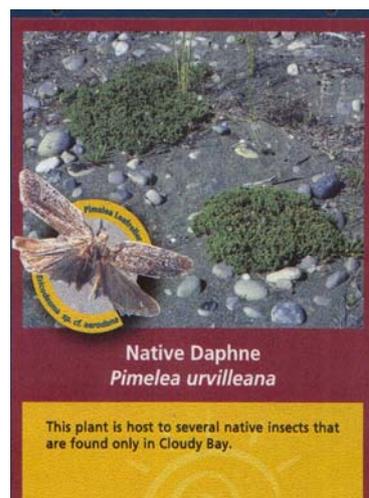
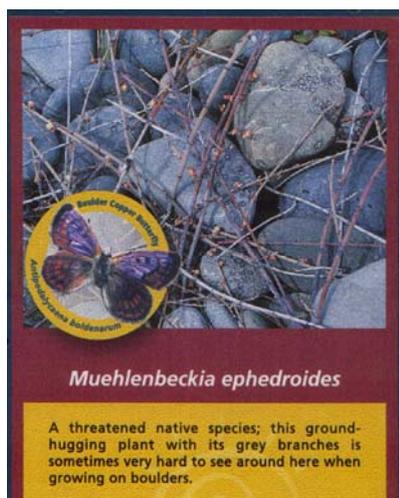
- (c) To increase community ownership of the beach plantings, to ensure they are valued and protected by residents.

Methods for encouraging community ownership could include;

- Maintaining ongoing contact between the Rarangi Landcare Group and the rest of the community, including the Rarangi Residents' Association.
- Continuing the positive relationship with local schools.

- Encourage more beach residents to become actively involved in restoring the beach by offering plants for individual plantings in front of houses along with advice, as well as continuing community planting days.
- Maintain signage to increase community and visitor understanding of and buy-in to the Rarangi beach restoration project.
- Continue to promote the use of existing vehicle tracks while encouraging respect for plants on the beach.

7.3 Issue 3 Native plants and animals



The communities of plants which originally grew along the Rarangi coastline hosted specialist groups of insects.

In front of the houses at Rarangi, garden escapees and weeds have largely displaced native plants. Those that remained when the Rarangi Landcare Group was established in 2000, included rare sand tussock, hinerepe (*Austrofestuca littoralis*), at Rarangi confined to a 2km stretch either side of the Blue Gum parking area); club sand rush (*Isolepsis nodosa*), sand sedge (*Carex pumila*) and *Muehlenbeckia ephedroides* as well as a few native daphne (*Pimelea urvilleana*, tumble weed (*Spinefex sericeus*, shore bindweed (nihinihi, *Calystegis soldanella*)) and ngaio.

The Rarangi Landcare Group's plantings have mostly been of sand tussock and the diminutive native daphne, *Pimelea urvilleana*; host to several moth species. Other species already present have also been planted including *Muehlenbeckia ephedroides*. This prostrate, usually leafless plant that hugs the ground is seen as unspectacular so weeded out by some residents who find it unattractive. As well as being threatened, this species is the host to caterpillars of the pretty copper butterfly found along the beach.

As club sand rush and sand sedge (*Carex pumila*) are naturally abundant, they have not been planted.

The scab weed *Raoulia australis* - which forms hummocks that support the Cloudy Bay mat daisy jumper or *Kiwaia* – has also been introduced to this section of beach, extending natural populations south of Blue Gum corner. However, these plantings did not survive and it has been difficult getting hold of planting material.

Other species being returned to the beach by the Landcare Group include silvery sand grass, tauhinu (*Cassinia leptophylla*), mingimingi (*Coprosma propinqua*), matagouri (*Discaria toumatou*), porcupine bush (*Melicactus aff. alpinus* "Waipapa"), coastal daisy *Olearia solandri* and ngaio (*Myoporum laetum*).

There is some resistance to the planting of taller species like ngaio as they can interfere with residents' view of the sea. However, some of the longest-term residents say they can remember when much of the beach was covered with matagouri. Pre-settlement, the Chaytor family's sheep grazed the foreshore leaving a cover of rough grass and matagouri.

Pingao (*Demoshoenus spiralis*) was probably once found along this stretch of coast and returning it to the Rarangi area via the Landcare Group is a possibility. As with other species, planting locally sourced pingao would be desirable. A single plant remains at the Wairau Bar and there are more in Clifford Bay providing a possible propagation source. Pingao found at Whites Bay were planted so are not a suitable source.

The re-introduction of pingao could be significant to local iwi as the species is highly valuable to weavers. Sun-dried, it produces a bright golden yellow fibre which contrasts with the red and black dyed fibres used in tukutuku paneling, and is also used for the weaving of kete and whariki.

With resurgence in Maori arts and crafts, there is an increasing demand for pingao as a raw material, but the species is not plentiful. Sustainable harvest is possible, but careful management is necessary to ensure plant survival.

The planting area has potential as a shrub/tree corridor for birds and lizards which ideally should be connected to the Hinepango Wetland Reserve, a little inland to the south.

Lizards may still live in driftwood which lies along the restoration area and have recently been seen further along the beach, although predation by cats and dogs is a major threat.

Cats and dogs also predate birds and invertebrate species.

There is a high likelihood that rats, mice, stoats and weasels are present, also posing a threat to lizards and birds.

7.3.1 Objectives

- (a) Habitat protection/restoration for naturally occurring plants and insects including threatened species and their hosts.
- (b) To ensure plantings are authentic, representing plant and associated invertebrate communities which would have existed here prior to the grazing of the beach and housing development.
- (c) For the Rarangi Landcare Group restoration area to become part of a corridor for birds and lizards, linking with the Hinepango wetland, to the west of Blue Gum Corner.
- (d) To respect Maori cultural values when propagating and planting on the beach.

7.3.2 Recommendations

- (a) That the Rarangi Landcare Group progressively works towards a natural rather than horticultural appearance for plantings.

Methods for working towards a more natural look, over time include;

- Encouraging the Group to look to the beach south of Blue Gum corner, as an example of a similar but less modified site where many of the species being planted exist naturally.
- In the meantime, continue to protect plantings from beach users including walkers and vehicles, by strategic placement of driftwood to encourage passage around but not through plots. Provide enough distance that there's room for plantings to expand and barriers don't become predator hides. Similarly, stones could continue to be used as location markers, but removed once plants are strongly established.

- The planting or protection of the threatened species, *Muehlenbeckia ephidroides*, should be a priority.
- (b) That once there's better knowledge of pests present, that pest control be considered.
- (c) Contact should be made with local iwi to talk about plantings, specifically whether there would be interest in pingao being established there with perhaps controlled harvesting as a weaving resource.



Driftwood is used to create barriers around plantings, protecting them from damage by beach users and stones help with locating plants. A more natural look is evolving as people involved with planting grow to appreciate the ecosystem they are helping create and plants start to naturally reproduce.

7.4 Issue 4 Planting and Maintenance Strategy



Plants propagated by Morgans Road Nursery ready for planting out



Outward Bound students help with weeding and planting

At the time the Rarangi Landcare Group was formed, members recognised that the restoration of the beachfront was potentially a 50-year project.

A Department of Conservation report published in 2001 revealed that the area and its native plants was important for native endemic moth species with several being rare and threatened. (Dugdale, 2001).

A booklet listing the local native plant species and propagation methods was put together with help from the Council and a planting chart to guide type and placement of species was included (Alex and Lasham, 2001). An adaptation of this planting chart is reproduced on page 22.

The Rarangi Landcare Group's beachfront restoration project began with a trial area above the high tide mark. The Department of Conservation provided some of the initial plants for the project, all grown at Morgans Road Nursery from seed and cuttings sourced from the beach.

Later, the Rarangi Landcare Group collected seed but had trouble establishing seedlings so passed them on to Morgans Road Nursery which was more successful. Sourcing seed from a depleted area, it was essential to maximise survival.

Morgans Road Nursery has had more success with growing sand tussock from seed than spinifex. Of thousands of spinifex seeds passed on to the nursery earlier this year, a large proportion was unfertilised and only a few hundred have taken.

The nursery also takes cuttings from existing plants including native daphne, then grown out and passed on to the Group for planting.

The Department of Conservation has issued a collection permit for the Rarangi Landcare Group to gather seed from conservation land at Rarangi. This will need to be renewed from time to time, as required.

The nursery provides the plants in root trainers. Some species including sand tussock can be ready for planting out a few months after seed is sown, i.e. seed is collected in summer and seedlings are ready for spring planting within five months. Other species like spinifex take longer and are ready for planting in autumn, when the survival rate for all species has been best.

Block plantings of the same species have generally had the highest survival. As yet, natural regeneration has not been observed.

With some plantings now well-established, planting material is now easily accessible from some species and the main constraint to the project is cash and time. The potential exists for plantings to grow beyond the Rarangi Landcare Group's ability to maintain them. Unless significant new support is identified, there is a risk that maintenance of existing plots could become too big a task for the Group and gains could be lost as weeds invade.

To help locate seedlings, they are sometimes surrounded by small stones. Over time, it is hoped plantings will naturalise and spread creating a more natural look.

As this is an ecological restoration project, to retain genetic purity it's important that only plant and seed material sourced from the local Rarangi area be used. Using especially adapted plants should also maximise survival. If plants are sourced from outside the area, there is a risk that local strains could be genetically altered or hybrids could develop. This is especially important for rare plants such as sand tussock and *Muehlenbeckia ephedroides* but also applies to more common species.

Rarangi Landcare Group Plantings, 2001-2007						
	sand tussock	daphne	tree-daisy	tauhinu	spinifex	muehlenbeckia
October, '07					42	
April '07	236	520	176	200		
April '06	2972	192	192			
Sept '05	432	336				
May '05		369				
July '04	556					
June '03 (est)	300	100		100		
Start '02 (est)	100	100	100	100		100
Trial '01 (est)	25					
	4621	1617	468	400	42	100

7.4.1 Objectives

- (a) The planting strategy should be designed to promote the long-term sustainability of the Rarangi Beach Restoration Project.
- (b) Plantings should be authentic, using locally sourced propagation material of species which naturally occurred on Rarangi Beach.
- (c) That plant survival should be maximised.
- (d) Ensure plantings replicate natural coastal vegetation patterns by referring to Rarangi Beach Vegetation chart for guidance as to species and locations (page 21).

7.4.2 Recommendations

- (a) Ensure plantings do not grow beyond the ability of the Rarangi Landcare Group to maintain them.

Methods for keeping the area of the restoration project manageable could include;

- Work towards a goal of having 50% of ground cover in the focus area being native species within the 10 years this Plan is operational.
- Plan ahead. The volume of plant material propagated for later planting should not exceed the Group's ability to plant out and care for the new plants. Aim for a planned number of plants each year (usually 2500-3000) with proportions of species to replicate, as closely as possible, what naturally grew on the beach. From seed collection, germination and growing out until plants are available for planting out takes from five months to three years, depending on the species.

- In consultation with the Department of Conservation and Marlborough District Council, discuss what species could be included in the following two year's planting programmes. Can seeds/plant material for propagation be collected from existing plantings? Will any need to be sourced elsewhere?
 - Keeping plantings as natural as possible by using the Rarangi Vegetation Chart as a guideline for siting various species.
 - Keep in touch with Morgans Road Nursery, as to how many plants will be available and when. Plan where they will be planted and when, and calculate whether there will be surplus plants which the nursery may sell if there is a demand.
 - Two to four focus areas could be developed, plus scattered smaller plots. Generally, Landcare Group and community working bees could focus on the larger plantings. Smaller plots could potentially be developed and maintained by residents in front of their own homes, with plant material, help and advice provided by the Rarangi Landcare Group.
- (b) The Rarangi Landcare Group continue to attract and maintain sufficient active membership to keep on top of planting and plot maintenance.
- (c) That plant survival be maximised. Methods for maximising survival could include;
- Collect plant material for propagation from the nearest source within the ecological district, ultimately from the Landcare Group's own plantings. This also ensures genetic authenticity. Occasional collection from elsewhere on the foreshore would aid genetic diversity and produce stronger stock.
 - Continue to place driftwood as barriers to protect plants from crushing by beach users and direct them away from plantings, while discouraging off-track use of vehicles on the beach. Ensure these are placed well back from plants so they do not provide predator hides and aim to eventually remove these as plantings naturalise.
- (d) Continue to educate Rarangi residents that they are the Department of Conservation's neighbours and must respect that this is Conservation Land.

Methods for educating the community could include;

- Publishing a Planting Guide for the project, listing species to be used, how and where they should be sourced and advice on establishment.
 - Maintain signage to increase community and visitor understanding of and buy-in to the beach restoration project.
 - Appoint coordinators within the Group, each responsible for a section of beach. The role could include educating residents on 'their' stretch of beach and inviting them to become involved with planting and weeding.
- (e) To encourage native invertebrates and other animal species associated with Rarangi beach plant communities.

Methods for encouraging beach fauna could include;

- Continuing to plant their plant hosts.
- Predator pest control and educating Rarangi residents that their cats and dogs are potential predators so should not be left to roam the beach and should be kept indoors at night.
- Surveying numbers of invertebrate and other species present, monitoring any changes in populations and reviewing management accordingly (e.g. identifying a need for a campaign to educate residents about responsible ownership of cats and dogs in this ecologically significant environment).

7.5 Issue 5 Weeds and pests



Gazanias & Lupins flowering on the beach front



A lupin pulling session by local children

Many of the weeds found in the area of Rarangi Beach being restored to original species by the Rarangi Group, are garden escapees. These have often spread from gardens adjoining the beach (which sometimes tend to creep beyond their boundaries by natural spread or deliberate planting).

Weed species were, until recently, often spread by people dumping (and sometimes burning) garden rubbish on the foreshore. Education and a total fire ban on the beach have helped prevent this.

DOC sprays gorse and broom from Monkey Bay to the Fire Station and from Blue Gum corner to the Wairau Diversion. However, the strip in front of houses where the Rarangi Landcare Group revegetation project is based is not targeted, as the use of herbicides near dwelling is avoided.

Weed control is mostly done by hand, with help from Outward Bound students. Most working bees are attended by the Department of Conservation and Marlborough District Council. The main target is planted areas, followed by infested foreshore areas.

Lupins appear to be the most invasive species, spreading seeds everywhere followed by gazania, exotic ice plant (*Carpobrotus edulis*), gorse and broom. Garden species prominent on the beach include *Artemisia arborescens* (wormwood), agapanthas, wallflowers, euphorbia, and grape hyacinth; not all naturalised. Californian poppies, marram grass, riggut brome (*Bromus diandrus*), boneseed (now under control) and pine trees can also spread and crowd or shade out resident communities of plants and animals.

Many of these species are extremely invasive and removing them to achieve a 50% cover of native species will be an ongoing challenge.

With this being a residential and popular dog-walking area, cats and dogs are the major predator threat to animal species inhabiting the beach including lizards, birds and spiders and large invertebrates. Rats, mice and possums are also likely to be present.

7.5.1 Objectives

- (a) To towards a goal of having 50% of ground cover in the Rarangi Landcare Group focus area being native species within the 10 years this Plan is operational
- (b) To educate the wider Rarangi community about weed and pest problems on the beach and ways they can avoid adding to these.

7.5.2 Recommendations

- (a) Accept that native plants will co-exist with weeds, including garden escapees.
- (b) Encourage beach residents to check their boundaries for garden escapees and other weeds.
- (c) Continue to educate residents about the potential for garden plants to become weeds.
- (d) That Rarangi Beach residents be made aware of the threat their cats and dogs pose to beach species including lizards, birds and larger invertebrates.
- (e) Methods for achieving recommendations b, c and d could include;
 - One-on-one visits by Rarangi Landcare Group coordinators to educate residents about which plants are weeds and how they can be removed and pets' potential to be pests. Explain that pets must be kept well fed and indoors at night.
 - Providing residents with a copy of the "Plant Me Instead" booklet with an accompany brochure/page highlighting the "good and bad" plants of Rarangi. Potentially, this information could be included in a Planting Guide, a final version of this Plan or a booklet on the beach restoration project, depending on budget.
 - Launch this Plan with an event which could include a workshop on "good and bad" plants for Rarangi.
 - Hand-control of weeds should be used where appropriate. Where herbicides are used, spraying should be targeted and extreme care must be taken with chemicals.
 - Weeds should be targeted well before spread becomes significant.
 - The importance of keeping the road reserve free of weeds which could otherwise become a source of spread, should be discussed with Marlborough Roads.
 - The Landcare Group and DOC could promote locally growing shrubs such as ngaio and tauhinu as native shelter species.

7.6 Issue 6 Funding and support, publicity and communication



Days end - Volunteer vineyard staff relax in front of Landcare sign on the foreshore



Rarangi Landcare Group logo

Since its inception in 2000, the Rarangi Landcare Group has received financial support from the Department of Conservation and Marlborough District Council, both financial and in kind. Grants have also been given by the Community Trust, World Wildlife Fund, Transpower Fund (managed by NZ Landcare Trust), Pub Charity, the World Wildlife Fund and Weedbusters.

Practical support has been generously provided by the Outward Bound Trust, with students regularly helping out with planting and weeding. Pupils of Tuamarina School have also helped out at some planting days.

As the Rarangi Landcare Group's beach restoration project grows, so does the need for funding to cover the cost of plants and their maintenance as well as communication.

Ongoing publicity will maintain the profile of the Rarangi Landcare Group's beach restoration project. This not only for raises community awareness and involvement, but can also attract sponsors who generally like to support visible projects with high credibility.

Spending on documents and events supporting the Rarangi Landcare Group's objectives will need to be appropriate for the Group's scale and the budget available.

7.6.1 Objectives

- (a) To ensure that the Rarangi Landcare Group receives sufficient funding and support to remain viable, for the ten year period of this Management Plan and beyond.
- (b) To maintain the public profile of the Rarangi Landcare Group's beach restoration project, to raise community awareness and involvement and also provide the profile and credibility sought by potential sponsors.

7.6.2 Recommendations

- (a) That the Department of Conservation and Marlborough District Council continue to provide guidance and support – both financial and in-kind - to the Rarangi Landcare Group planting project while ensuring that it remains community-driven.

Methods for supporting the project may include;

- Supplying labour and/or materials for activities including pest and weed control
- Helping plant and maintain plots

- Helping cover certain costs such as the production of this Management Plan
- Supporting funding applications
- Continuing to print the Rarangi Landcare Group's newsletter (MDC)
- Providing expert advice on, for example, species to plant
- Helping with the collection of plant material for propagation
- Providing necessary permits for seed collection (DOC)
- Helping identify plot location and establish a framework for monitoring species presence and cover
- Attending Landcare Group meetings
- Supporting the organising/advertising of working bees
- Providing some interpretation panels and signs

- (b) That the Rarangi Landcare Group each year records the cost of the previous year's activities, and any income, assesses probable costs for the following year's activities and sets realistic budgets.

Methods for keeping track of costs and budgeting for expenses could include;

- At the end of the financial year (March 31) as accounts are prepared and audited, the previous year's plantings, costs and sources of revenue could be reviewed and plans made for the year ahead. A Landcare Group member should continue to be appointed as treasurer.
- Each year, possible funding sources should be identified and applications made for specific projects. The Marlborough District Council and Department of Conservation could help with identifying funding sources and supporting applications.

- (c) That sponsors are identified and funding sought when needed.

- (d) That the Rarangi Landcare Group provides "value" to sponsors.

Methods for providing "value" could include;

- Directly and publicly acknowledging organisations which provide financial and in-kind support.
- Keep sponsors in touch with how their support has helped by sending a letter of thanks, copies of newsletters, photos and media clippings.

- (e) That the Rarangi Landcare Group maintains a high profile for the project.

Methods for maintaining a high profile for the project could include;

- Developing a communications strategy, setting out opportunities for publicity and how they can be utilised. This need not be complex; it could identify publicity opportunities, list media contacts and other key contacts.
- Contact the media or send out a press release when events of potential interest take place. A publicity role could be given to someone within the Group who could build a relationship with media contacts. (see Appendix, media contacts).
- Continue the existing newsletter and distribute to interested parties including sponsors and the media.
- Continue to maintain the existing interpretation and plant identification signs on the beachfront which provide information about the beach ecology to the public.

- Maintain or upgrade the booklet “Native Plant Species found on the Rarangi Foreshore” (Alex and Lasham, 2001), to provide information on plants that naturally occur on the beachfront area.
- (f) That this Management Plan be launched at a public event featuring relevant and knowledgeable speakers, perhaps including a lizards expert.
- (g) The Rarangi Landcare Group, the Department of Conservation and Marlborough District Council should consider options for presenting the final version of this Management Plan, based on desired outcomes, accessibility and funds available.
- Options include;
- Low cost; printing this draft and a summary in-house at the Marlborough District Council plus an information sheet on “good and bad plants” of Rarangi Beach.
 - Medium cost; printing this draft and a summary in-house at the Marlborough District Council plus an information sheet on “good and bad plants” of Rarangi Beach. Later, a final Plan would be published, either professionally or in-house.
 - High cost; printing this draft and later a final report as a basic document in-house. Then, information could be summarised and attractively presented in a professionally produced and easy-to-read booklet (which would include the “good and bad plants” of Rarangi Beach information. Perhaps funding could be applied for to cover the costs of this publication, if sufficient advantages could be identified.

7.7 Issue 7 Monitoring

The Rarangi Landcare Group’s mission statement is; to create a habitat for threatened plants and associated insects on the stretch of beach from the first dwelling to Blue Gum Corner.

Working to a ten year plan, the Rarangi Landcare Group, Department of Conservation and Marlborough District Council have a shared vision of scattered plantings of native species that belong on the beach plus two to four larger focus areas of plantings.

The aim is to work towards having at least 50% of the planting area covered in native plants.

7.7.1 Objective

To ensure progress towards the Group’s mission statement and goals, it is necessary to “place sticks in the sand”, recording where the project has got to in 2007 (seven years after it began) and measuring progress at set times.

7.7.2 Recommendations

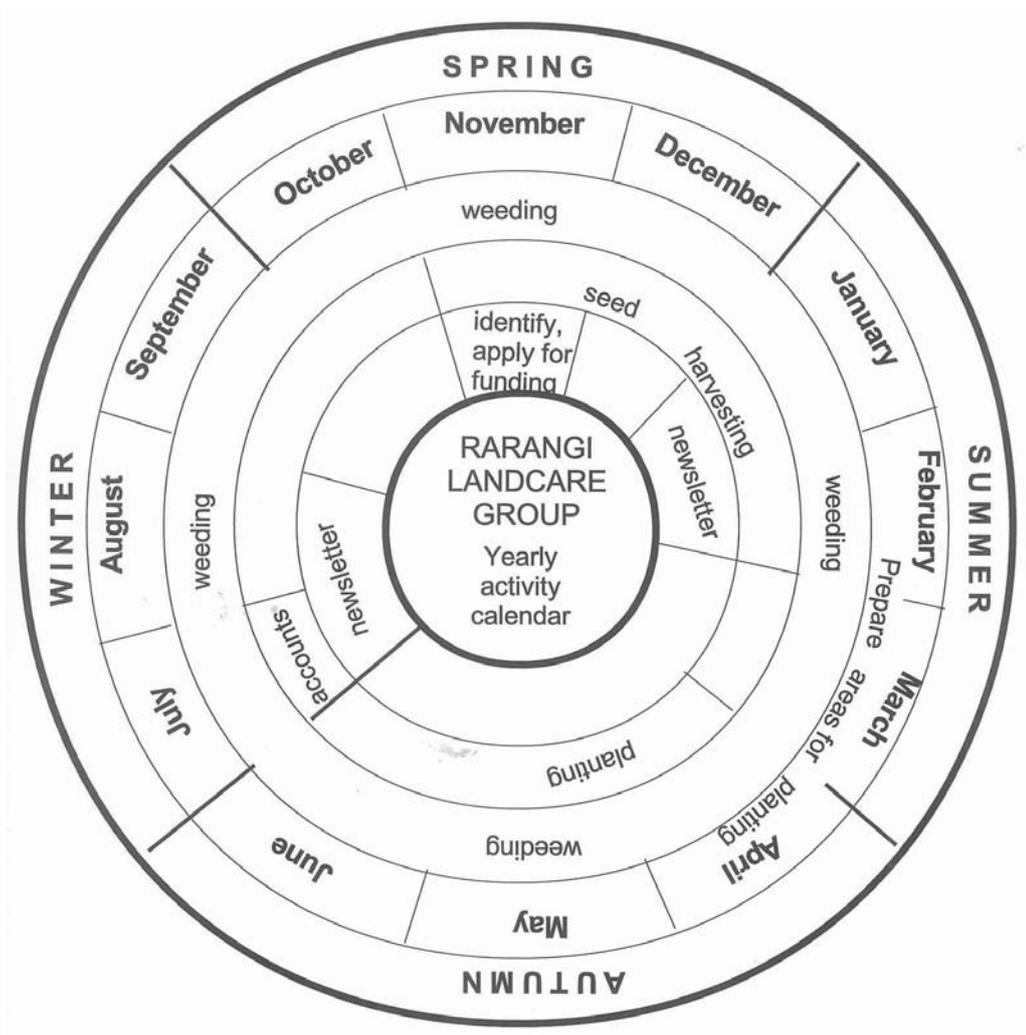
- (a) Seek advice on how to objectively to calculate total coverage of the planting area and the percentage of native and exotic cover, so this measurement could be repeated at regular intervals to measure progress.
- (b) That the 50% coverage target be reviewed on the basis of the results of this survey.
- (c) Investigate the feasibility of extending the Department of Conservation’s Skyworks aerial photography monitoring of the beach south of Blue Gum Corner to the Rarangi Landcare Group area.
- (d) Investigate the feasibility of extending the Department of Conservation’s insect survey regularly carried out on the beach south of Blue Gum Corner, to the Rarangi Landcare Group area.
- (e) That moth species, insects, lizards and other species living on the beach be recorded. Following scientific survey, residents could be encourage to record their own observations

- (f) That bird species living on the beach be recorded. Following scientific survey, residents could be encouraged to record their own observations.
- (g) That the possibility of monitoring for animal pests be considered.
- (h) That the Rarangi Landcare Group record and file all relevant information, to be kept by a key member and passed on to their replacement(s). This will provide both an historic resource and a record of progress should an audit be required.

The type of Information that should be recorded and filed includes;

- Dates and locations of working bees, attendance, location, species planted, weeds controlled etc
- When and where seed and plant material was collected for propagation
- Meeting minutes
- Newsletters
- Newspaper and magazine clippings
- Letters to and from the Group

Rarangi Landcare Group Yearly Activity Calendar



Bibliography

Birds of Rarangi Wetlands, Dave Barker, Habitat Creation and Restoration. October 2005.

Cloudy Bay Coastal Habitats; Entomological Values of the Foreshore and Associated Inland Habitats, J.S. Dugdale. Department of Conservation, Nelson, August 2001.

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Hinepango Wetland Reserve Restoration Plan, John Preece, WetlandsNZ. Department of Conservation, South Marlborough area office, May 2003.

Native Vegetation for South Marlborough; A Planting Guide. Department of Conservation and Marlborough District Council, December, 2004.

Rarangi Coast Operational Plan, South Marlborough Area Office (Draft). Department of Conservation, July 2007.

South Marlborough Significant Natural Areas Project summary of results by Geoff Walls, Philip Simpson and Nicky Eade. Marlborough District Council, July 2005.

Wairau Ecological Region; Blenheim, Grassmere, Flaxbourne, Wither Hills and Hillersden Ecological Districts – Survey Report for the Protected Natural Areas Programme by Michael North. Department of Conservation, Nelson, June 2004.

Personal conversations with Graeme and Ann Matthews of Rarangi; John Hipkins of Blenheim and Dave Barker of Habitat Restoration.

Reference material

The **Coastal Dune Vegetation Network** consists of people with an interest in sand dune vegetation and collects and distributes information to help them preserve these fragile ecosystems. More than 200 organisations and individuals are involved in the Network, including regional and district councils, other Crown Research Institutes, forestry companies, tertiary education institutes, iwi, consultants, nurseries and community groups, such as Beach Care and Coast Care. This collaborative research network is administered by Ensis.

Technical bulletins available from the organisation are;

- Pingao on Coastal Sand Dunes: Guidelines for seed collection, propagation and establishment, by David Bergin and JW Herbert
- Spinifex on Coastal Sand Dunes: Guidelines for Seed Collection, Propagation and Establishment, by David Bergin
- Sand Tussock on Coastal Sand Dunes: Guidelines for Seed Collection, Propagation and Establishment, by David Bergin
- Coastal Sand Dunes: Form and Function, by Patrick A. Hesp
- Marram Grass: Friend or Foe?, by Ruth L. Gadgil.

These are available from Scion, publications, Private Bag 3020, Rotorua 3010. Phone 07 343 5755
publications@scionresearch.com

Coast Care, Bay of Plenty (Environment Bay of Plenty) has a number of relevant publications. Look under the 'coast' section of the EBOP website then 'coast care brochures'. The Christchurch City Council also supports Coast Care groups.

The **Department of Conservation** has published;

- From Seed to Success – Guidelines. The booklet is designed for people involved in community conservation projects. It provides advice about establishing, maintaining, improving and evaluating community conservation projects. This is available on the DOC website, www.doc.govt.nz/publications.
- Protecting and Restoring our Natural Heritage; A Practical Guide, by Mark Davis and Dr. Colin Meurk. Department of Conservation, 2001. This is available on the DOC website, www.doc.govt.nz/publications.
- Threatened Plants of South Marlborough, A Field Guide. Department of Conservation Nelson/Marlborough Conservancy, August 2002.

WWF New Zealand has published;

- 'Not Just Trees in the Ground: The social & economic benefits of community-led conservation projects'. Diane Buchan, Croydon Consultants Limited, WWF New Zealand, Wellington, 2007. This is available on the WWF New Zealand website, www.wwf.org.nz

Useful contacts

- The **NZ Landcare Trust**. Contact Barbara Stuart, 03 545 0443.
- The **Funding Information Service's FundView** is a computer database of information about funding for community groups. Available to subscribers (including the Landcare Trust), it can also be accessed free-of-charge at the Marlborough District Council and Blenheim Library. Otherwise, a subscription costs \$168.75 (including an hour of searching) plus \$50.63/hour of use. (www.fis.org.nz)
- Relevant funding sources include the **WWF-World-Wide Fund for Nature's Habitat Protection Fund**; **Pub Charity Inc.** www.pubcharity.org.nz; **New Zealand Community Trust** (mainly sport and arts but would look at community projects), **Lottery Environment and Heritage Grants**.