

PROJECT WHIRINAKI STRATEGY AND IMPLEMENTATION PLAN

FOREWORD

Project Whirinaki is an ambitious project being undertaken by Ngāti Whare, to regenerate about 600 hectares of indigenous forest by the progressive replacement of exotic plantation forest as it is harvested. The project is being planned and implemented by Te Pua o Whirinaki Regeneration Trust, representing a partnership between Ngāti Whare and the Crown. A series of goals, objectives, and policies have been developed and are presented in this plan, along with an implementation programme. Harvesting of the exotic plantation forest will continue until 2032 and, by necessity, Project Whirinaki will be a long-term initiative.

Funding currently available to the Trust is not adequate to complete the overall task so partners are an important part of this project. A range of revegetation and regeneration techniques will be used, with varying costs, and will be applied on a case-by-case basis to address particular requirements at different sites. The vision and goals for the project are based on an integrated approach to the mauri of Whirinaki Forest and the mana of Ngāti Whare.

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PART ONE

STRATEGIC APPROACH

1. BACKGROUND

Ngāti Whare is a central North Island iwi whose rohe is based around the Whirinaki Valley, Minginui, and the Whirinaki Conservation Park, for which they are tangata whenua.

Whirinaki Forest is a nationally-renowned indigenous forest tract in the Whirinaki Valley, between the Kāingaroa Plateau to the west and Te Urewera to the east.

Much of the Whirinaki Valley still has a cover of indigenous forest, most of which is administered by the Department of Conservation, in a partnership role with Ngāti Whare, but there are also reasonably extensive areas of exotic plantation forest and farmland.

Whirinaki contains outstanding examples of dense podocarp forest, grading into beech forest at higher altitude. Some of the best indigenous forest, however, were logged and cleared, and then converted to exotic plantation forest. That land is currently in the Whirinaki Crown Forest License.

As part of the Treaty of Waitangi settlement between the Crown and Ngāti Whare, the exotic plantation forest land is now being returned to Ngāti Whare, who wishes to re-establish indigenous forest to replace the exotic plantation forest.

Project Whirinaki is a bold initiative by Ngāti Whare to regenerate about 600 hectares of indigenous forest by progressively replacing exotic plantation forest as it is harvested.

Regeneration of indigenous forest will increase the ecological integrity of the Whirinaki Valley and help restore the identity of Ngāti Whare.

This project will ultimately enhance the value of Whirinaki Conservation Park, and adjacent areas, for all New Zealanders and encourage development of the Te Whāiti-Minginui community.

A charitable trust, Te Pua o Whirinaki Regeneration Trust, representing a partnership between Ngāti Whare and the Crown, manages the land and Crown funds and is responsible for implementation of Project Whirinaki.

The Trust has a core fund and intends to only use income from that fund to undertake projects, in conjunction with resources from project partners (the core fund is not adequate to directly undertake the scale of work required).

2. VISION

The principle underlying the establishment of Te Pua o Whirinaki Regeneration Trust is "He Tapu Te Whirinaki" - the sacredness of the Whirinaki - which is recognised in the project's vision:

To enhance the mauri of the Whirinaki Forest and the mana of Ngāti Whare

The vision takes a holistic view of the indigenous forest landscape and acknowledges the aspirations of Ngāti Whare, as tangata whenua for Whirinaki.

3. GOALS

Enhance the mauri of Whirinaki Forest

Indigenous forest will be regenerated to support the full range of species diversity, re-establish ecological processes and ultimately provide traditional and ecological services, e.g. food sources, comprising Ngāti Whare's pātaka kai.

Enhance the mana of Ngāti Whare

Regeneration of the indigenous forest will be done in such a way as to support the involvement and livelihood of Ngāti Whare and in a manner that is consistent with the aspirations of Te Rūnanga o Ngāti Whare.

4. **OBJECTIVES**

Enhance the mauri of Whirinaki Forest:

- Regenerate harvested exotic plantation forest using fit-for-purpose regeneration options and appropriate indigenous tree species.
- Restore other components of ecological integrity (e.g., fauna, habitats, ecological processes) where possible and appropriate.
- Integrate Project Whirinaki into wider ecological restoration initiatives within the Whirinaki Valley.

Enhance the mana of Ngāti Whare

- Actively seek opportunities with and for Ngāti Whare.
- Ensure Project Whirinaki benefits from shared learnings with Ngāti Whare people.
- Involve Ngāti Whare as much as possible in Project Whirinaki activities.

• Keep Ngāti Whare well informed of all initiatives and progress, and maintain their leadership role with their lands.

5. **POLICIES**

In order that the Trustees achieve the purpose and requirements of the Deed of Trust the following policies will be applied in the management and use of the Trust Fund:

Indigenous Regeneration

• Regenerate the exotic plantation forest to indigenous forest in a strategic, costeffective, and timely fashion.

Ngāti Whare and Local Community

- Engage with, and involve, local communities.
- Provide progress reports to interested organisations and media.

Partnerships

• Form partnerships with identified benefits to the Trust.¹

Finance

• Maintain an enduring financial position for the Trust within specified bounds.

¹ The Deed of Trust specifies it is a role of the Trustees to "raise funds from third parties including regional councils, government scientific and development agencies, private philanthropists, corporates, charitable trusts and through the Trust's own economic initiatives".

PART TWO

IMPLEMENTATION APPROACH

6. OVERVIEW

Exotic Plantation Forest Return Area

The lands to be regenerated comprise 18 plantation compartments being harvested between 2011 and 2035, distributed within about five kilometres of Minginui village.

The programme of implementation work will vary markedly across years, depending upon the area harvested. See Appendix 1 and map in Appendix 2.

The total harvest area is 592.5 ha (Appendix 1), of which considerable areas have already been harvested or are due for harvest in the near future:

2011 - 23.34 ha	2012 - 17.44 ha
2013 - 19.93 ha	2014 - 34.25 ha
2015 - 31.51 ha	2018 - 34.68 ha

The total area to be harvested by 2018 is 161.15 ha.

Overall Approach

The overall approach is to:

- Provide direction to Project Whirinaki through development of a Strategy and Implementation Plan;
- Apply fit-for-purpose regeneration options (Appendix 3) for each compartment that are implemented in a manner consistent with our Plan Goals and Objectives and based upon an assessment of each harvested compartment;
- Enhance the involvement of Ngāti Whare people, and the local community, through information sharing on strategy and implementation as well as participation in implementation of the regeneration options;
- Develop partnerships, in a strategic sense, and also in terms of shared project funding. Partners to date are Timberlands, Bay of Plenty Regional Council (BOPRC), and the Department of Conservation. Two of the partners (Timberlands and BOPRC) have already made financial commitments, while the Department of Conservation is providing advice and support in kind.

Programme of work

An implementation programme (Section 7. below and updated by the end of each August) specifies the compartments requiring work (maintenance and regeneration) in the current year and two out-years. The activities required over a number of years, for each compartment, will be captured in a Project Plan and the activities in each year will be detailed in an Annual Work Plan that captures all work across Project Plans that are active in a year.

- An evaluation will be made of each compartment, sometimes before harvest, but usually after, to characterise the exotic plantation forest and develop preferred regeneration methods (Appendix 4).
- Project Plans will be developed for each compartment before, or within two years of harvest, and specify all activities required over a number of years to meet the full range of Goals and Objectives contained in the Strategy and Implementation Plan. The plan will specify when and where regeneration options will be applied, define logistical considerations and constraints, develop costings and match these to funding options. The activities in a Project Plan must also include long- and short-term measures of performance and potential remedial activities.
- An Annual Work Plan will be developed by the end of October each year, for the subsequent calendar year and specify all of the activities required to meet the full range of Goals and Objectives contained in the Strategy and Implementation Plan. The Annual Work Plan also specifies performance measures for activities as well as remedial activities for past work. The Annual Work Plan and budget is broken down by Projects active in that year.

Performance Review

A Performance Review against Goals and Objectives will be undertaken by the end of August each year, so that remedial activities can be incorporated into the subsequent years Annual Work Plan. The annual Performance Review contains the activities and performance measure(s) from the Annual Work Plan for each year, to which is added progress and remedial activities in the annual review document (Appendix 5).

Planning Cycle



7. IMPLEMENTATION PROGRAMME

Programme 2014-2018

2014-2015

- Develop Project Plans for Compartment 111 (Project Plan 1) and Compartment 130 (Project Plan 2).
- Following harvest, evaluate Compartments 81, 82, 83, and 112, and develop specific regeneration options.

<u>2015-2016</u>

- Establish a tōtara-dominated stand within Compartment 113, a high profile site adjacent to the entrance to Whirinaki Forest and Minginui Village.
- Revegetate Compartment 130, either with groups of podocarps or mixed indigenous species.

2016-2017

• As above, for another compartment, or suite of compartments.

Budget

	Whirinaki Trust	Timberlands	Bay of Plenty Regional Council	Other
2014-15	\$30k	\$20k	\$40k	
2015-16	\$30k	\$20k		\$50k
2016-17	\$30k	\$20k		\$50k

EXOTIC PLANTATION FOREST RETURN AREAS

Plantation compartments to be returned to Ngāti Whare following harvesting over the period 2011-2035 are listed below (data supplied by Timberlands).

Compart- ment	Land Class	Land Type	Species	Harvest Year	Total	Comments
81	Planted	Productive	Lusitanica	2011	22.46	
			Radiata	2035	7.39	
		Protected	Japanese larch	2011	0.15	
	Unplantable	Reserve	NA		0.16	
	Unplanted	Unstocked Gap	NA		0.25	
82	Planted	Productive	Lusitanica	2012	14.66	
		Protected	Japanese larch	2011	0.73	
	Unplantable	Reserve	NA		0.79	
	Unplanted	Unstocked Gap	NA		0.03	
83	Planted	Productive	Lusitanica	2012	2.78	
			Radiata	2035	5.24	
84	Planted	Productive	Radiata	2015	31.51	
				2035	10.08	
	Unplantable	Reserve	NA		0.79	
	Unplanted	Unstocked Gap	NA		1.37	
112	Planted	Productive	Radiata	2013	8.98	
	Unplanted	Cutover	NA		10.18	
		Unstocked Gap	NA		0.26	
113	Planted	Productive	Radiata	2014	34.25	
	Unplantable	Reserve	NA		15.06	
		Riparian	NA		7.45	
	Unplanted	Skid	NA		0.49	
129	Planted	Productive	Radiata	2023	3.94	
				2027	6.96	
	Unplantable	Reserve	NA		7.64	
		Riparian	NA		6.68	
	Unplanted	Skid	NA		0.34	
		Unstocked Gap	NA		0.74	
130	Unplanted	Cutover	NA	2013	10.95	
		Unstocked Gap	NA		8.85	
131	Planted	Productive	Radiata	2030	47.24	
	Unplantable	Riparian	NA		3.28	
	Unplanted	Skid	NA		1.47	
		Unstocked Gap	NA		1.21	
132	Planted	Productive	Radiata	2018	34.68	
	Unplantable	Reserve	NA		1.41	
		Riparian	NA		2.91	
	Unplanted	Skid	NA		0.55	
		Unstocked Gap	NA		1.13	
133	Planted	Productive	Radiata	2030	18.34	
	Unplanted	Skid	NA		1.23	
		Unstocked Gap	NA		1.82	
134	Planted	Productive	Radiata	2030	34.91	
	Unplantable	Reserve	NA		2.19	
		Riparian	NA	l	3.44	.]

Compart- ment	Land Class	Land Type	Species	Harvest Year	Total	Comments
	Unplanted	Skid	NA		0.65	
	-	Unstocked Gap	NA		2.84	
135	Planted	Productive	Radiata	2032	11.07	
			Douglas			
			fir	2031	16.77	
				2032	4.83	
	Unplantable	Riparian	NA		8.25	
	Unplanted	Unstocked Gap	NA		2.27	
136	Planted	Productive	Radiata	2028	43.29	
				2030	5.78	
				2033	1.09	
	Unplantable	Reserve	NA		14.15	
		Riparian	NA		1.44	
	Unplanted	Skid	NA		2.32	
		Unstocked Gap	NA		3.68	
137	Planted	Productive	Radiata	2033	61.15	
	Unplantable	Reserve	NA		24.17	
		Riparian	NA		1.02	
	Unplanted	Unstocked Gap	NA		0.79	
144	Planted	Productive	Radiata	2021	1.22	
	Unplanted	Unstocked Gap	NA		0.02	
145	Unplantable	Reserve	NA		3.76	
151	Planted	Productive	Radiata	2032	4.25	
	Unplantable	Riparian	NA		0.74	
Grand Total					592.50	

APPENDIX 2

MAP OF EXOTIC PLANTATION FOREST RETURN AREAS



APPENDIX 3

REGENERATION OPTIONS FOR EXOTIC PLANTATION FOREST COMPARTMENTS AND ASSOCIATED COSTS

REGENERATION OPTIONS FOR EXOTIC PLANTATION FOREST COMPARTMENTS AND ASSOCIATED COSTS

DO NOTHING

This option may be exercised under the following situations:

- There is insufficient Trust funding available to proceed with regeneration for this site/ harvest year;
- Sponsored/leveraged funding options have been exhausted;
- There is sufficient residual indigenous species advance growth to meet the Trusts' requirements for regeneration on the site.

PODOCARPS SPECIES ONLY

This option may be exercised under the following situations:

- The community has expressed a wish for a podocarp-only stand to be established and, in the opinion of the Trust, the site is suitable with an acceptable risk level or the risk level is capable of being satisfactorily ameliorated.
- The Trust considers the establishment of a podocarp only stand on a particular site(s) will meet future needs for cultural harvest.
- Tōtara was once dominant on the site, e.g. Mangawiri Basin, and the Trust considers it appropriate, and/or the risk level is acceptable or can be ameliorated, to re-establish tōtara on the site.

Indicative Costs

The following estimates are based on the cost of large (75 cm to 1m tall) totara seedlings at \$6.50 each; a planting cost of \$1.50/seedling, four releasing operations at \$0.50/seedling and 10% contingency. They exclude the cost of site specific site preparation, pest control, fencing and miscellaneous.

- Establish 200 seedlings/ha \$2,200/ha
- Establish 400 seedlings/ha \$4,400/ha
- Establish 1000 seedlings/ha \$11,000/ha

ENHANCED NATURAL REGENERATION

Most of the Settlement Lands potentially available for rehabilitation back to podocarp forest will be clear-felled radiata pine plantation stands. Because of the very large size of the trees and their vulnerability to windfall after late heavy thinning it is generally not feasible to leave a low stocking of mature trees post-harvesting in order to facilitate weed control (by shading). Economic considerations would also enter the equation. In general the sites will be clear-felled with a range of slash abundance, subject to the full force of extreme climate conditions (drought in summer, heavy frost in winter and damaging late frosts in spring and summer) and subject to aggressive invasion by toetoe and/or blackberry on most sites. Natural regeneration of any indigenous species will be patchy unless the pre-existing stands were patchy or lightly stocked as a result of disease or windthrow and already colonised by indigenous species which survive the logging operation. With the exception of margins adjacent to surviving high forest podocarps will take decades to establish.

Some radiata pine stands, especially first crop stands on indigenous forest sites, will not be fully stocked. Lightly stocked and "gappy" stands may have well developed partial or localised indigenous species understoreys especially in steep south-facing areas and along entrenched streams. Armillaria may also have caused localised gaps in the tree canopy allowing indigenous species to naturally regenerate within the plantation stands. For all plantation stands destined for rehabilitation to indigenous forest a pre-harvesting survey should be carried out to assess the extent and nature of indigenous species advance growth. Where advance growth is reasonably abundant and well developed harvesting constraints should be put in place to, as far as is practicable, preserve the integrity of such advance growth. This will probably involve directional felling, head-hauling, and constraints on machine movement. Extraction routes may need to be defined on-the-ground prior to harvesting. On some sites there is likely to be a compensation expense but it will be outweighed by savings made in direct regeneration costs. Saved advance growth may, on some sites, substantially supplement the regeneration programme. However, podocarps are likely to be few in number and it would be advantageous to plant them after the harvesting operation.

For most clear-felled former mature plantation sites the following rationale and prescription may be applicable.

Large clear-felled areas provide an environmentally and competitively hostile habitat for the invasion of indigenous tree and shrub species. Individual sites can be in excess of 20 ha and parts or all of the sites may be distant from potential seed sources. Furthermore most indigenous species seed once present in the ground will have disappeared during the 30 or more years of the plantation forest rotation(s). Weed species with wind-blown seed including toetoe and buddleia can be expected to be aggressive and successful. With the exception of margins adjacent to indigenous high forest there is generally little to attract seed distributing indigenous birds to these sites. Hence a combination of aggressive, tall growing persistent weed species and the lack of a viable mechanism for introducing bird-distributed seed of indigenous species to the site is likely to result in decades of weed-infested landscapes.

We propose the establishment of islands of indigenous species-including kohuhu, mahoe, fuchsia, karamu, houhere, manuka, rautawhiri are sited on strategically located microsites throughout the clear-felled site. Weed control will be intensive in the planted stands in Years 1 to 3. Podocarps do not lend themselves to establishment in open areas exposed to the climatic extremes and soil type characterising Whirinaki but in Year 3 or 4 supplementary planting of podocarps-including tōtara, rimu, kahikatea, matai and miro-will be undertaken within the shelter of these islands of indigenous shrubs. By Year 4 seed-distributing indigenous birds-mainly tui, bellbird, silvereye-will be visiting these islands for feeding (fruit and insects) and will begin to introduce seed sourced from outside the site (including podocarps) and distribute seed sourced from the islands across the site. The process of natural regeneration will have begun.

The overall aim could be to establish up to 20% of the total area of any available site in islands of indigenous shrubland in Year 1. This will either supplement saved advance growth or comprise the regeneration treatment in its own right. The islands will generally be small - between 150 and 300 seedlings per site - with a seedling spacing of 1.8 m by 1.8 m (for quick canopy closure) and supplemented by one large podocarp seedling for every 10 regeneration species seedlings established in Year 3 or 4.

Indicative Costs

The following unit costs are applicable to the Enhancement option:

1/0 regeneration grade PB3 seedlings \$3.00; transport \$0.30/seedling; planting \$1.50/seedling; releasing \$0.40/seedling; slow release fertiliser tabs NPK 20:4:4 \$50/1000

90+ cm tōtara, rimu, kahikatea 60+cm matai, miro \$5.00/seedling; transport \$0.40/seedling; planting \$2.00/seedling; slow release fertiliser tabs NPK 20:4:4 \$50/1,000. All unit costs plus GST

Approximate **Total Establishment Cost Years 1 to 3** for mixed regeneration species plus podocarps:

- 5% area planted \$1,113/ha
- 10% area planted \$2,225/ha
- 15% area planted \$3,338/ha
- 20% area planted \$4,450/ha

Some cutover sites may require clearing of slash and cultivation of compacted areas.

BIODIVERSITY PLANTING ON HIGH PRIORITY SITES

This is a standard technique for rapidly converting pasture and/or weedy lands to closed canopy indigenous shrubland. It requires high stocking rates of fast-growing, proven regeneration species to achieve rapid canopy closure. On most sites around 350 m altitude in central North Island effective canopy closure is achieved by the end of the fourth growing

season. On higher altitude sites at Whirinaki effective canopy closure by Year 5 would be expected.

Standard procedure requires the planting of 3,000 seedlings of regeneration species per ha at a spacing of 1.8 m by 1.8 m. The main regeneration species for the Whirinaki Project area include manuka, kanuka, mahoe, kohuhu, houhere, makomako, karamu, te kauka, rautawhiri, five finger, and perhaps fuchsia. In Year 3 or 4 mixed species podocarps would be supplementary planted at a stocking rate of 300 large seedlings/ha.

On a per hectare basis this is an expensive regeneration technique but is well suited to obtaining rapid site coverage and canopy closure on selected high priority sites. At Whirinaki such sites might include roadsides, areas close to the village and areas adjacent to tracks/ roads/accessways/camping and parking areas used frequently by visitors.

Indicative Costs

The following unit costs are applicable to the Enhancement option

1/0 regeneration grade PB3 seedlings \$3.00; transport \$0.30/seedling; planting \$1.50/seedling; releasing \$0.40/seedling; slow release fertiliser tabs NPK 20:4:4 \$50/1,000

90+ cm tōtara, rimu, kahikatea 60+cm matai, miro \$5.00/seedling; transport \$0.40/seedling; planting \$2.00/seedling; slow release fertiliser tabs NPK 20:4:4 \$50/1,000. Costs are GST exclusive.

Approximate **Total Establishment Cost Years 1 to 3** for mixed regeneration species plus podocarps in the order of **\$20,000/ha**.

APPENDIX 4

SITE CHARACTERISATION AND PREFERRED REGENERATION METHODS

WHIRINAKI REGENERATION TRUST SITE CHARACTERISATION AND PREFERRED REGENERATION METHODS

Physical Descriptors	
Compartment Number	Map Reference or Location
Topography	Photo Reference (e.g. attached, photo no.)
<u>Harvesting</u>	
Proposed Harvest Year	
Cultural Sites: (list GPS locations and proposed treatments)	
Existing Advance Growth of Indigenous Species: (describe species, distribution and abundance, state proposed treatment.
confirm liaison with Timberlands)	
Weed Species:	
Existing Weed Species	Potential Weed Species Post-Harvest
Regeneration	
Planting Year	
Preferred Regeneration Do nothing	
Option	
(tick preferred option) Podocarps only	
Enhanced Natural R	Regeneration: (circle % of cleared area) 5% 10% 15% 20%

	Biodiversity Planting	
To be Actioned by Timeframes:		
Eollow-Un Actions:		
Consultation with Potential Sponse	or Groups?:	
Timberlands	BOPRC	Community
Other (specify):		
Education Opportunities?:		
Conoral Observations/Commenter		
General Observations/Comments.		

APPENDIX 5

PERFORMANCE REVIEW AGAINST GOALS AND OBJECTIVES

ANNUAL PERFORMANCE REVIEW AGAINST GOALS AND OBJECTIVES (YEAR -)

GOAL: Enhance the mauri of Whiring	GOAL: Enhance the mauri of Whirinaki Forest				
Objective 1: Regenerate harvested exotic plantation forest using fit-for- purpose regeneration options and	Activities:				
appropriate indigenous tree species.	Performance Measure(s):				
	Progress:				
	Remedial Activities:				
Objective 2: Restore other components of ecological integrity (e.g., fauna, habitats, ecological processes) where possible and appropriate.	Activities:				
	Performance Measure(s):				
	Progress:				
	Remedial Activities:				
Objective 3: Integrate Project Whirinaki into wider ecological restoration initiatives within the	Activities:				
Whirinaki Valley.	Performance Measure(s):				
	Progress:				
	Remedial Activities:				

GOAL: Enhance the mana of Ngāti Whare		
Objective 1: Actively seek opportunities with and for Ngāti Whare.	Activities:	
	Performance Measure(s):	
	Progress:	

GOAL: Enhance the mana of Ngāti Whare		
	Remedial Activities:	
Objective 2: Ensure Project	Activities:	
Whirinaki benefits from shared learnings with Ngāti Whare people.		
	Performance Measure(s):	
	Progress:	
	Remedial Activities:	
Objective 3: Involve Ngāti Whare as much as possible in Project Whirinaki activities.	Activities:	
	Performance Measure(s):	
	Progress:	
	Remedial Activities:	
Objective 4: Keep Ngāti Whare well informed of all initiatives and progress, and maintain their leadership role with their lands.	Activities:	
	Performance Measure(s):	
	Progress:	
	Remedial Activities:	