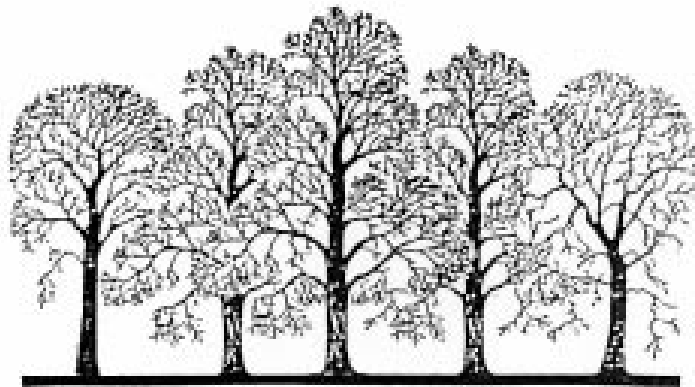


Landscape Planting Guidelines for Lowland South Marlborough

Practical planting suggestions for productive landscapes using both exotic
and native plant species



Adapted from the Wairau Plain Landscape Concept Guidelines
– prepared by Lucas Associates for the Marlborough District Council in 2002
in response to rapid land use change and the removal of established trees from the landscape

Wairau Plain Landscape Concept GUIDELINES

Through a local planning exercise (see described in **The Plan**), long-term visions were suggested for the Wairau Plain landscape. One of the long-term visions is shown below, and the drawing conveys something of this character. Whilst using characteristics that have been or are an important part of this place, the description and image is of a very different character to what is there today.

The many people involved in the planning exercise realise that to achieve such a vision, a lot of different effort by many different parties will be needed. As well as effort by individual persons, co-ordination and co-operation will be valuable.

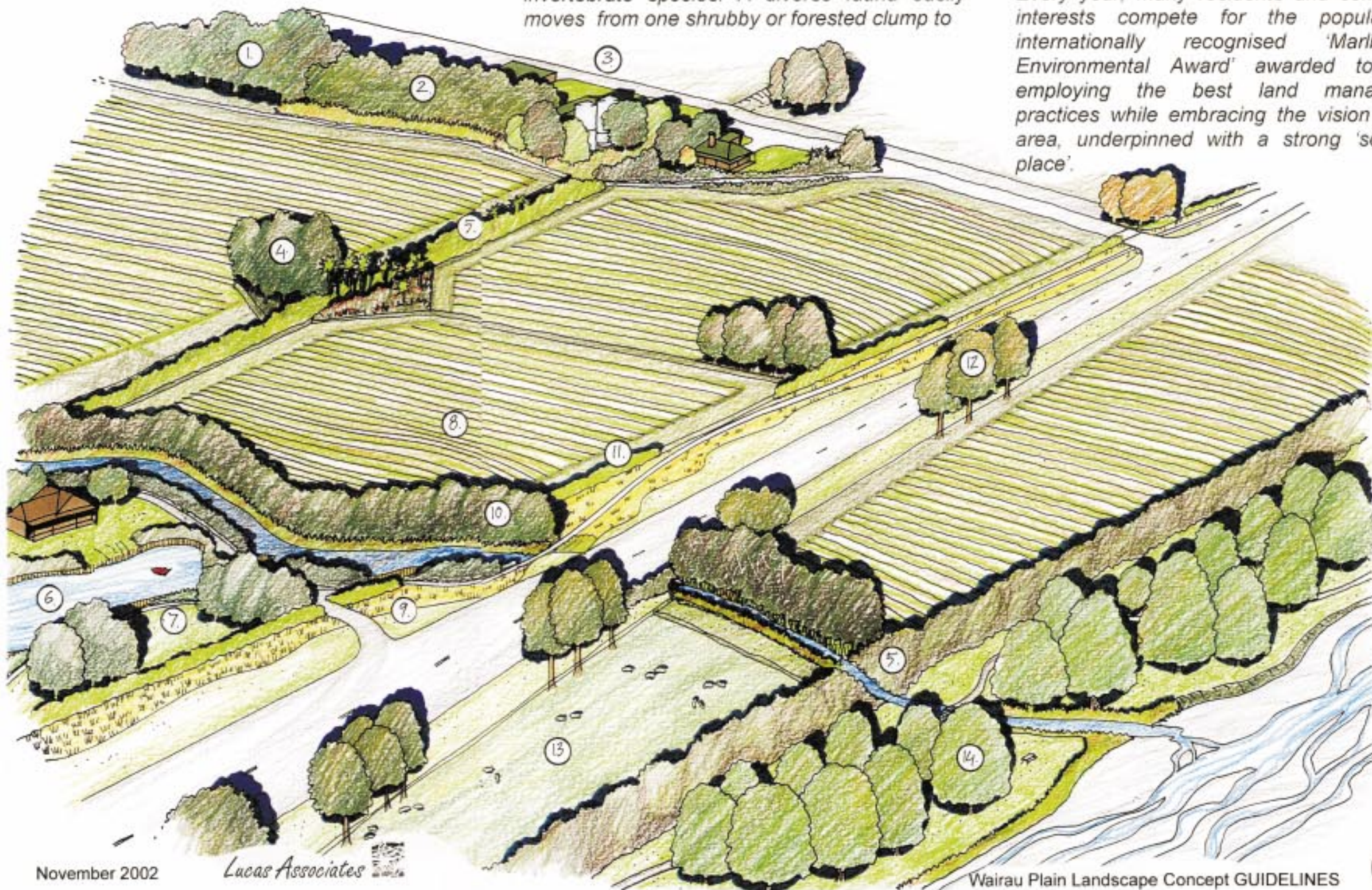
The Guidelines that follow provide some practical advice for persons wanting to make their contribution to achieving this visionary landscape of the Wairau Plain. These Guidelines recognise the diversity of lands, waters and limitations of the Plain.

It is intended the Guidelines be continually added to and updated, that there is support and encouragement to implementing them, and that progress toward achieving the vision be monitored and reported.

The team welcomes feedback on the usefulness of the guidelines, and on where there is room for improvement or the need for further information.

KEY to sketch of 'Vine Country'

- 1 A percentage of each land holding = trees (not forestry)
- 2 Opportunity to plant up effluent disposal areas
- 3 Buildings nestled into 'treed' nodes
- 4 Occasional corners in exotic or native plantings
- 5 Terrace risers planted in native vegetation, providing wildlife corridors and links to riparian strips and other planted clumps
- 6 Creation of water holding areas to reduce the need for drains
- 7 Cycleway and walkway links
- 8 Enhance subtle ground contours – don't flatten during site development
- 9 Road verges planted in 'soft' native planting of low stature, small stemmed (e.g. native grasses)
- 10 Riparian strips planted in native mix to trap nutrients, shade stream, increase habitat and provide strong links through the productive landscape
- 11 Occasional native hedgerows to 'soften' fencelines – leave some gaps to provide vistas.
- 12 Clumps of exotic trees break vineyard monotony and provide 'islands' for wildlife
- 13 Vary land use where possible
- 14 Plant lower wide river terraces in substantial amenity tree planting incorporating picnic areas, cycle / walkways



A Wairau Plain VISION

Imagine arriving in the Wairau Plain, where one is welcomed into a prosperous balanced landscape. A sense of community well being and pride in their place is strongly evident. The land is well managed, productive, and home to a diverse range of activities. Viticulture is by far the most prevalent land use but is tempered with a rich matrix of vegetated waterways, public parks, field copses of healthy exotic and native trees, well-mannered road verge plantings, and clearly responsible and forward thinking farming practices. The many rivers, streams, and small watercourses run clear and weed free, kindly shaded by sinuous ribbons of flax, shrubs, trees and grasses, providing home to a plethora of fish and invertebrate species. A diverse fauna easily moves from one shrubby or forested clump to

the next, which is never far away – strong vegetated corridor links have been formed, nurtured and maintained. Walkways and cycleways are abundant, locals and tourists alike enjoying the scenery, or sampling the local cuisine accompanied by a wide range of world famous wines at the winery stop of your choice.

The many who have been attracted to the Wairau Plain to live, reside in small 'hamlets' on the lower footslopes of the Wither Hills benefiting from expansive seasonally changing views across the plain to the Richmond Range, Wairau River and Cloudy Bay.

Every year, many residents and commercial interests compete for the popular and internationally recognised 'Marlborough Environmental Award' awarded to those employing the best land management practices while embracing the vision for the area, underpinned with a strong 'sense of place'.

sketch ideas

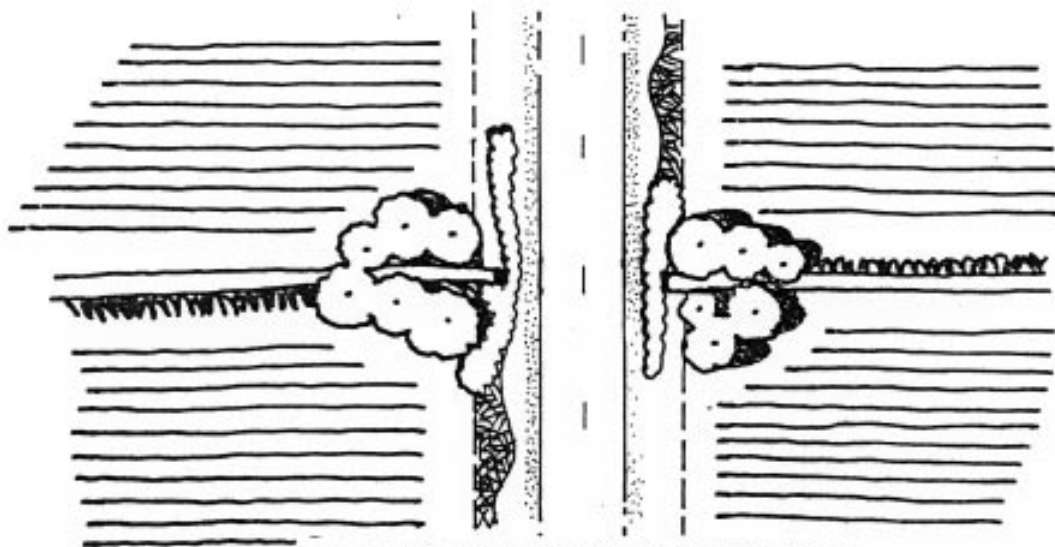
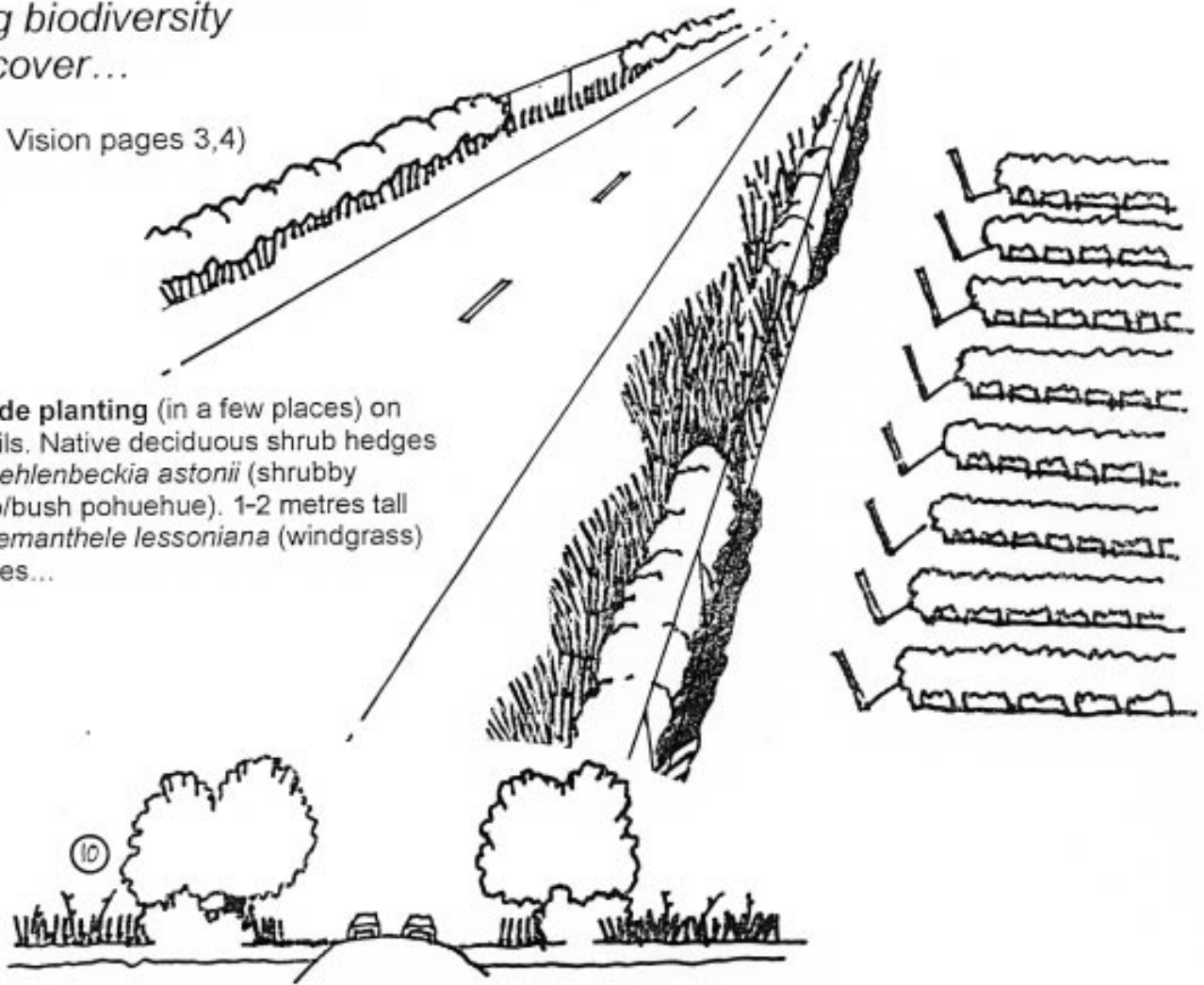
PLANTING OPPORTUNITIES

to contribute to a landscape framework and ecological health, increasing biodiversity and tree cover...

(no's refer to Vision pages 3,4)

9

Roadside planting (in a few places) on drier soils. Native deciduous shrub hedges e.g. *Muehlenbeckia astonii* (shrubby tororaro/bush pohuehue). 1-2 metres tall and *Anemanthele lessoniana* (windgrass) on verges...



Expanding planting linkages. Continue watercourse under road via a culvert and keep planting going on other side of road along the watercourse...

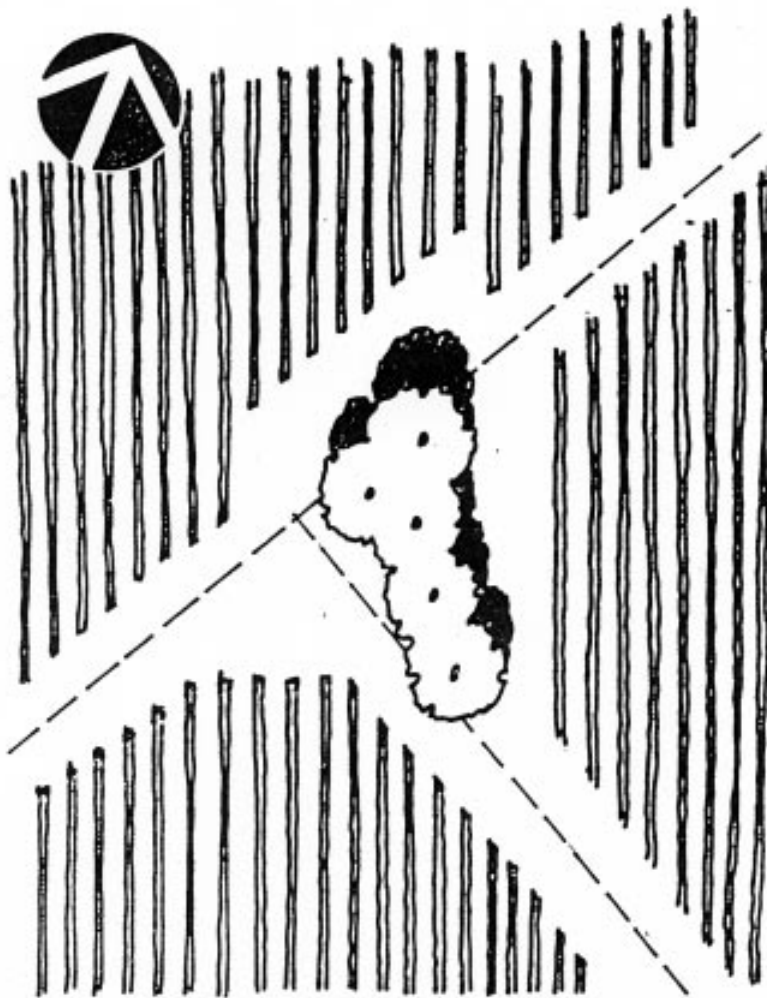
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sketch ideas
PLANTING OPPORTUNITIES

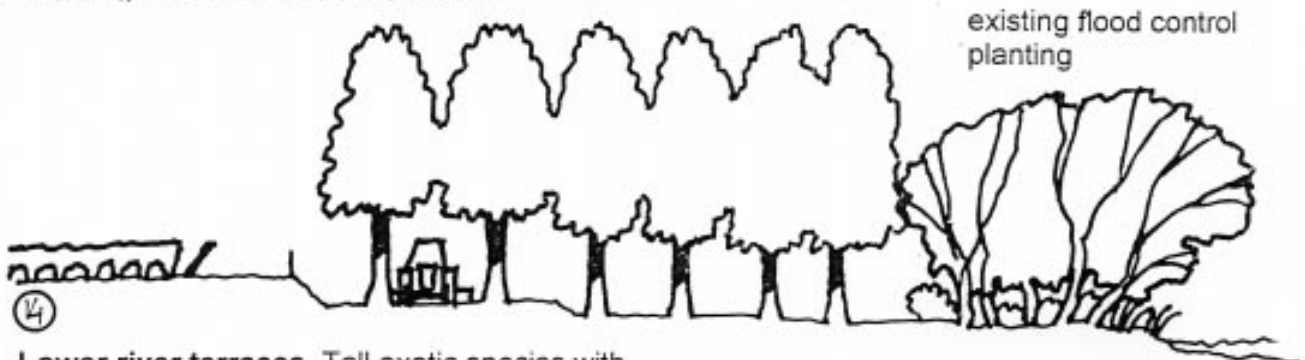
to contribute to a landscape framework and ecological health, increasing biodiversity and tree cover...

(no's refer to Vision pages 3,4)



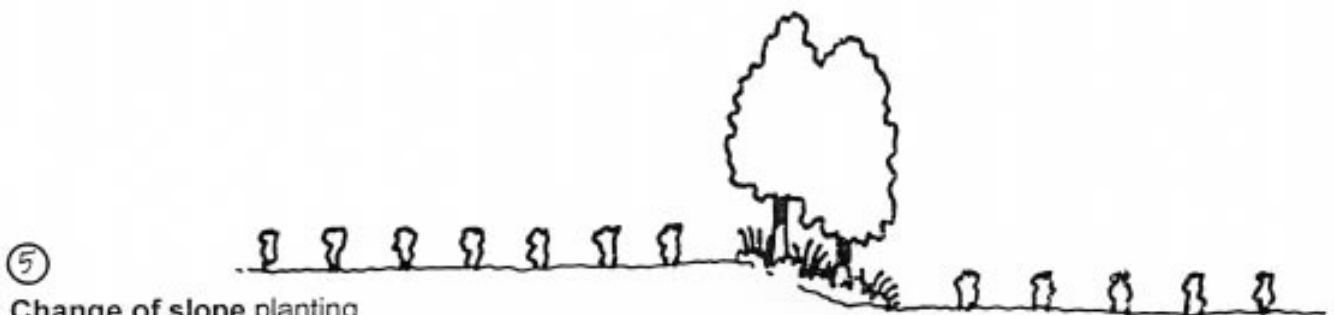
④

Vineyard copse opportunities. Plant deciduous trees roughly aligned north-south...



④

Lower river terraces. Tall exotic species with clear trunks spaced so that a tractor and mower can maintain...



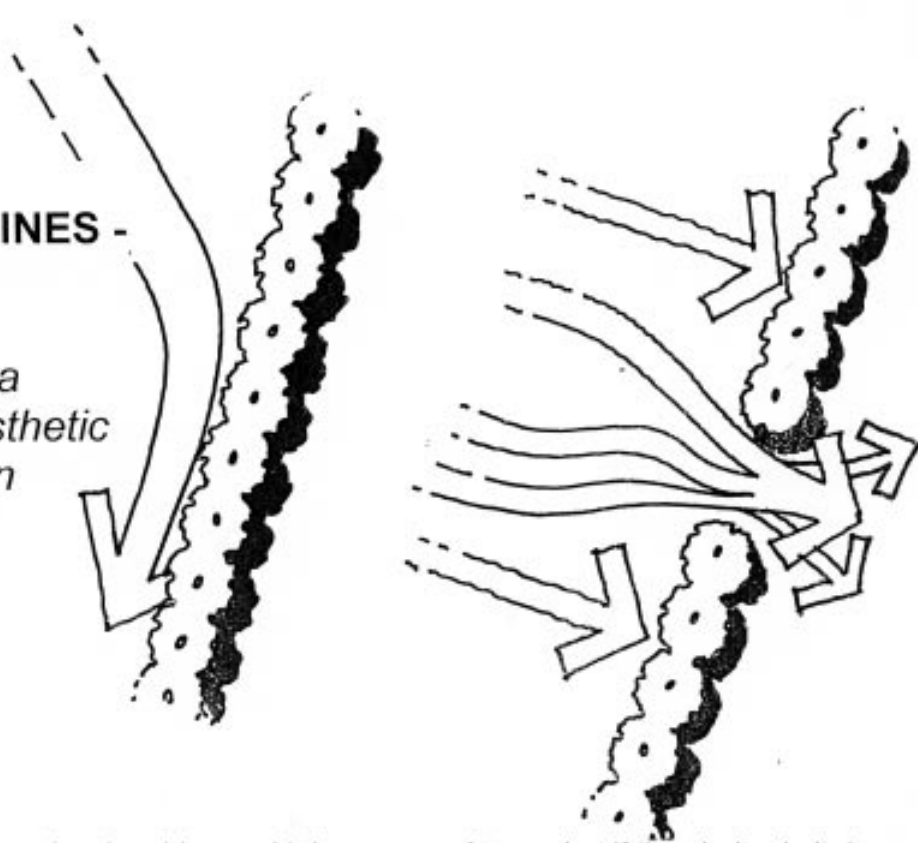
⑤

Change of slope planting opportunity. Plant deciduous trees with an underplanting of native grasses...

sketch ideas

PLANTING GUIDELINES - THE ELEMENT OF SHELTER

*to help contribute to a
logical, practical, aesthetic
shelter and specimen
tree framework*



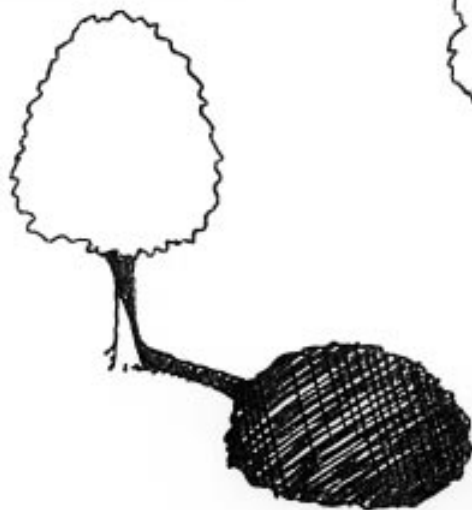
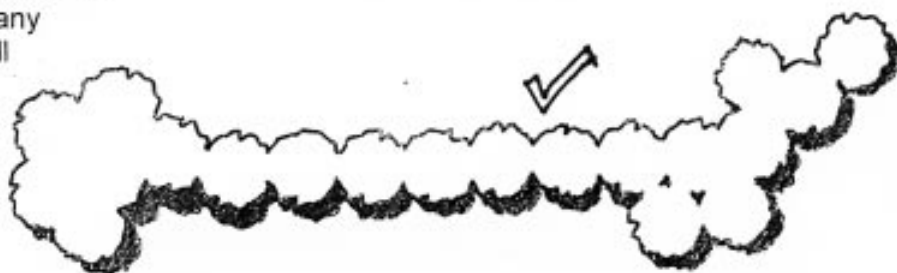
Shelterbelts. Not only are there visual problems with long rows of trees, but if the shelter belt does not lie at right angles to the path of the wind, then the wind can be accelerated along the belt. If the long row is broken by a gap for a gateway or power lines, this gap will become a wind funnel.

Where rows of windbreak planting are required, always try to run them *with* the lines of the land – the valleys, terraces, swales, waterways, soil boundaries, etc. A layout that does not relate to the landform will soon dominate the landscape. Permeable windbreaks of rounded form and soft colour will disrupt the landscape less than windbreaks of dark, dense, formal trees. Generally, broadleaved trees are less disruptive than conifers.

A straight row shelterbelt or roadway planting, should not suddenly start or stop. Each belt needs to be linked with other plantings, having a wider end group, and continue some way in another direction. If only lineal plantings are used, considerable care is needed with their siting as any straight line or geometric shape will become a dominant element



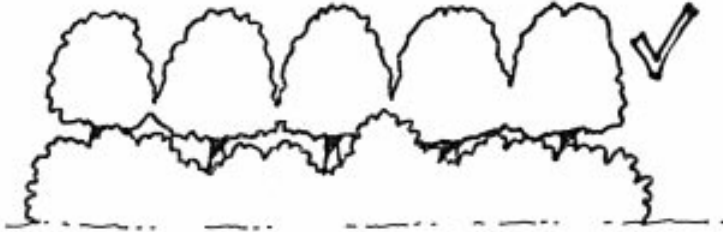
Avoid abrupt, straight shelterbelts



Deciduous trees with clear trunks at least 4m high provide good stock shade. The shade is projected away from the base of the tree and moves around during the day. The stock move with the shadow so that their camping is not concentrated in one place. Winter shade is minimal.



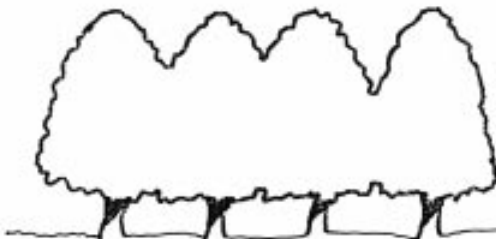
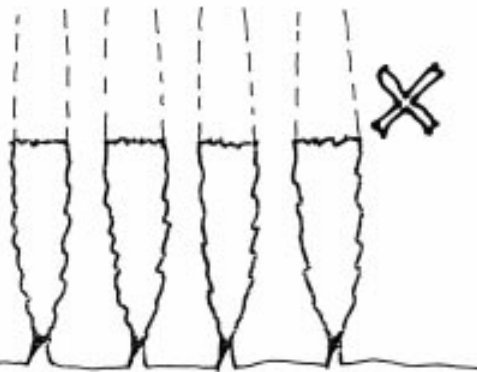
Add lower, denser shelter to the high permeable trees only if absolutely necessary, such as for critical stock or crop shelter. Any density immediately cuts the visual landscape flow (and could pond cold air). Soft form and colour in the lower storey is essential — never use conifers. If an understory is needed, use a mixture of the local native trees and shrubs e.g. South Island kowhai, tarata, kohuhu, manatu, kapuka, karamu, koromiko, mikimiki, shrubby tororaro, taupata, harakeke and toetoe, possibly adding some multi-use exotic plants such as fruiting, bee and stock fodder trees and shrubs.



Fussy, garden-style ornamental trees and shrubs should not be added to shelter belts or roadside plantings as they do not suit the broad rural landscape. Mix species informally in all plantings: never alternate different kinds.



Relatively even tree height is desirable for effective shelter. But avoid topping or hedging trees. Instead, plant trees that will grow to the desired height.



sketch ideas
**PLANTING GUIDELINES -
 THE ELEMENT OF SHELTER**
*to help contribute to a logical,
 practical, aesthetic
 shelter and specimen tree framework*

Expanding planting linkages (detail)

Maximise the planting opportunities wherever you can, and try to create linkages that will benefit both the ecological and the aesthetic.

Try and create a native grouping that has a dense surrounding to discourage predators from entering, and maximise the calm space inside.

When designing the plant layout, work outwards, keeping the long term taller tree species e.g. totara and matai, in the centre amongst other shade tolerant trees and shrubs, graduating outwards to the more hardy trees and shrubs that will tolerate climatic extremes better e.g. manatu, houhere, kohuhu, kapuka, tarata, ti kouka.

As you emerge from the forest 'patch' use the sun-loving smaller leafy and divaricating shrubs, karamu, koromiko, mikimiki and shrubby pohuehue amongst the flax-like plants and finally fringe with a range of low grasses massed separately in clumps, planted closely together and punctuate with the occasional kowhai.

Use soft frangible plants on the road verge such as massed grasses and flax-like plants, and, furthest from the road, cabbage trees in small groupings. On the steeper stream banks inside, mass plant with sedges and hardy shield ferns and at the toe of the bank where the water interface is, plant up with rushes.

This general layout philosophy could apply to any native grouping that one may wish to add to the Wairau Plain.

Plants from the 'SHORT LIST'

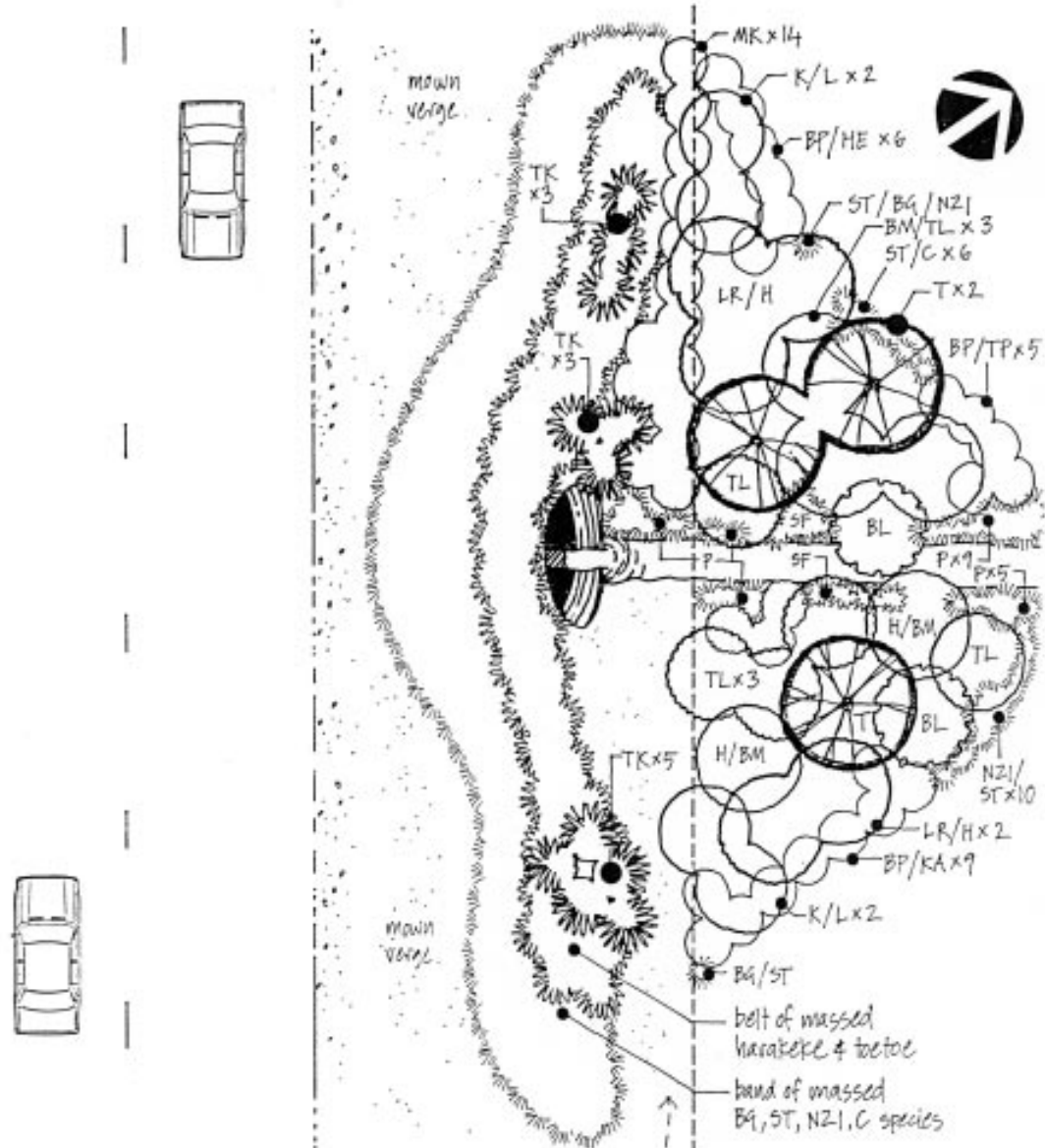
code	common name	botanical name
Trees (<i>greater than 5 metres tall</i>)		
H	houhere, narrow-leaved lacebark	<i>Hoheria angustifolia</i>
BL	kapuka, broadleaf	<i>Griselinia littoralis</i>
BM	kohuhu, black matipo	<i>Pittosporum tenuifolium</i> spp <i>tenuifolium</i>
L	lancewood, horoeka	<i>Pseudopanax crassifolius</i>
LR	manatu, lowland ribbonwood	<i>Plagianthus regius</i>
K	South Island kowhai	<i>Sophora microphylla</i>
TL	tarata, lemonwood	<i>Pittosporum eugenioides</i>
TK	ti kouka, cabbage tree	<i>Cordyline australis</i>
T	totara	<i>Podocarpus totara</i>
Shrubs (<i>from 1 to 5 metres tall</i>)		
KA	karamu	<i>Coprosma robusta</i>
HE	koromiko	<i>Hebe salicifolia</i>
MK	mikimiki, mingimingi	<i>Coprosma propinqua</i>
BP	shrubby tororaro/bush pohuehue	<i>Muehlenbeckia astonii</i>
TP	taupata (pre-European introduction)	<i>Coprosma repens</i>
Groundcovers & flax-like plants (<i>less than 3 metres tall</i>)		
BG	bamboo grass, windgrass	<i>Anemanthele lessoniana</i>
C	carex	<i>Carex comans</i>
C	carex	<i>Carex testacea</i>
	harakeke, NZ flax	<i>Phormium tenax</i>
NZI	NZ iris, mikoikoi	<i>Libertia ixioides</i>
P	pukio, makura, tussock sedge	<i>Carex secta</i>
SF	shield ferns; pikopiko; puniu	<i>Polystichum richardii</i> ; <i>P. vestitum</i>
ST	silver tussock, wiwi	<i>Poa cita</i>
	toetoe	<i>Cortaderia richardii</i>
	wiwi, giant rush	<i>Juncus pallidus</i>

sketch ideas

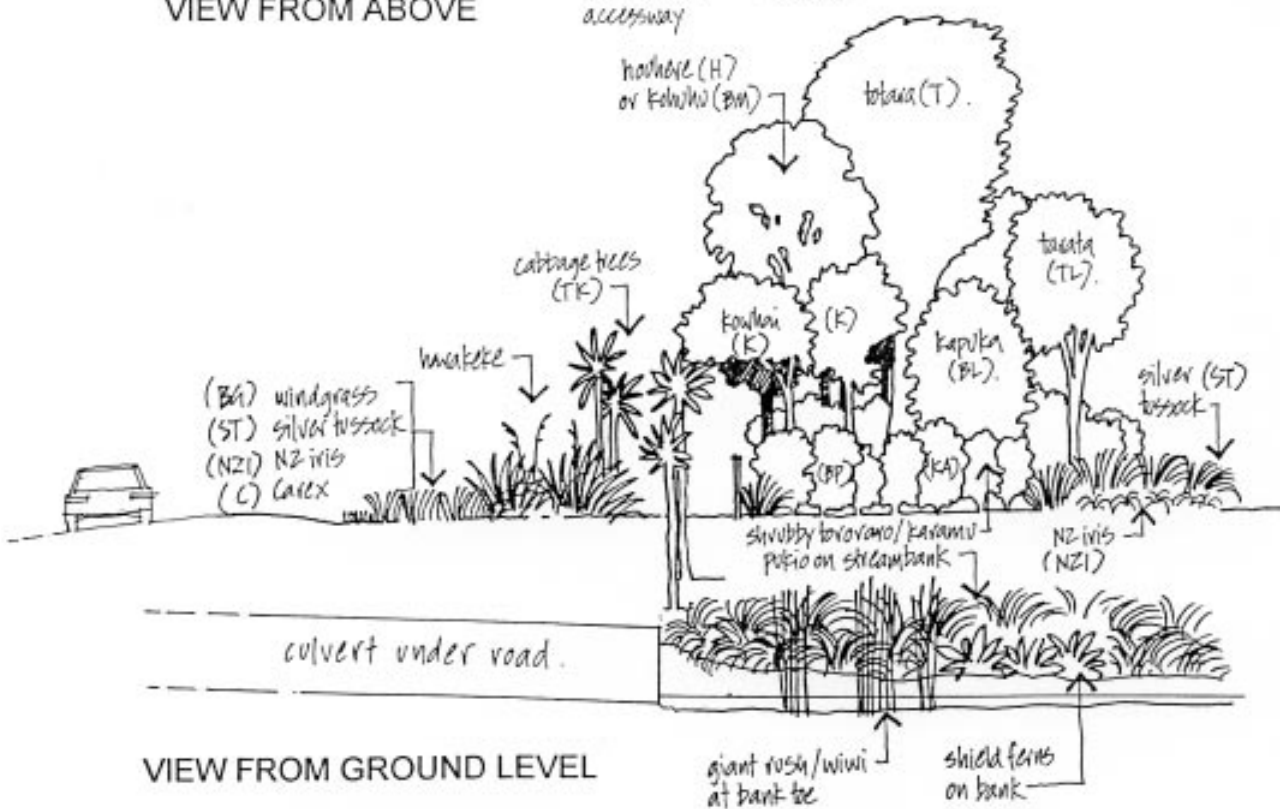
PLANTING OPPORTUNITIES

*to contribute to a landscape framework and ecological health,
increasing biodiversity and tree cover...*

(in reference particularly to point 10, 'A Wairau Plain Vision' pages 5 6)

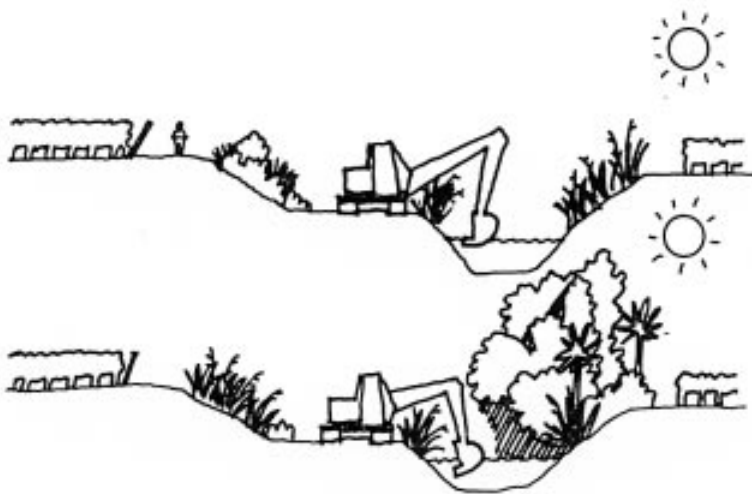


VIEW FROM ABOVE



VIEW FROM GROUND LEVEL

sketches illustrating RIPARIAN TREATMENT for various types of waterways



Large waterways

Good

- Planting on 'non-productive' slopes
- Leave terrace open for access to maintain
- Potential cycleway on level above

Better

- Full riparian corridor on northern side to shade stream as much as possible



Typical existing situation

- Narrow slot drain, steep sided
- Little opportunity for riparian planting
- Closely fenced, very little shade
- Minimum habitat value
- Minimal buffers to nutrient runoff

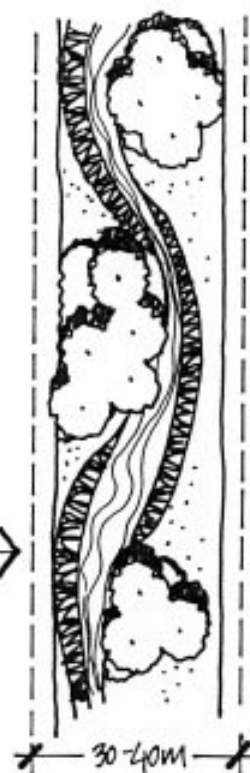


Small waterways

- Plant in clumps and drifts to enable access points for maintenance work
- Plant in between clumps with low grasses e.g. flax / sedges

Potential situation

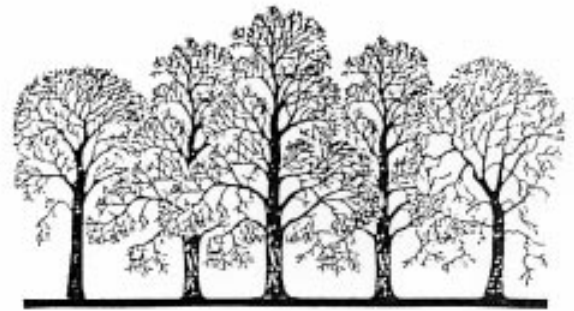
- Widen corridor and encourage meanders to reestablish; *through excavation (initially), then natural processes*
- Increased scope for larger scale shade planting etc. in clumps
- Semi-continuous belts of flax/sedges on banks
- Keep areas for sporadic access with excavator



exotic trees

DESIGN GUIDELINES

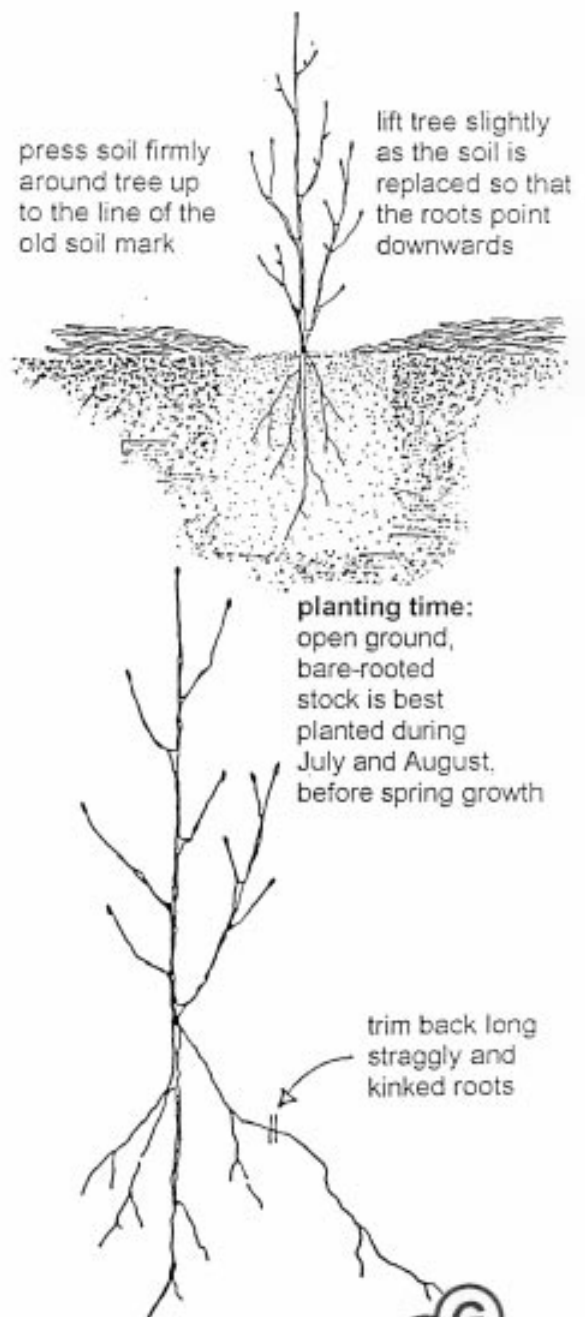
- Clumps of trees add interest and visual scale, they provide some shade and can diffuse winds.
- Moisture limitations may decide the minimum spacing between trees; in drier areas, trees need to be wider spaced than in moist areas.
- Mass trees together, close enough to touch in time, so none appears as an individual.
- Choose a tree type(s) that will grow to the desired height. Avoid topping trees.
- Choose several of one type (minimum 3, but preferably more), rather than one of each.
- For mixed groups choose tree types that complement each other, rather than strong contrast. Keep the contrast subtle.
- Plant summer-green foliaged trees, avoid golden summer foliage as it visually dominates. Interest comes from seasonal changes, spring growth, autumn colours and the varied surrounds.



exotic trees

TREE PLANTING AND MANAGEMENT

1. Good site preparation is essential for any planting to be successful. Remove the ground cover from each site prior to planting, either by chipping it off with a spade to expose the soil, or by using a herbicide.
2. Planting time for open ground, bare-rooted stock is best during July and August (the dormant stage), before spring growth.
3. Open ground plants have to be planted straight away after purchase or delivery, alternatively they have to be heeled-in, in a cool sheltered place and kept moist until the appropriate planting time.
4. Plant quality: Open ground, bare-rooted stock should have a well developed root system which points straight down, that is with no large kinks in the main tap root area.
5. Choose tree types that generally are not dependent on irrigation once they are established.
6. Mulching and adequate weed control reduces the need for watering.
7. Keep the root zone free from moisture competition from grass.
8. Form pruning may be necessary to ensure good form of a tree. Avoid a highly managed look e.g. pollarding trees.



SPECIES LIST

Dry: e.g. suited to the droughty & shallow *Rapaura* soils

Moist: e.g. suited to *Wairau* & *Gibsons* soils

Wet: e.g. suited to the *Paynter*, *Grovetown* & *Spring Creek* soils



Botanical name	common name		height
Maples			
		dry moist wet	
<i>Acer davidii</i>	David's maple	■ ■ □	10 – 15 m
<i>Acer negundo</i>	box elder	■ ■ □	12 – 20 m
<i>Acer rubrum</i>	swamp maple	□ □ ■	15 – 25 m
<i>Acer saccharum</i>	sugar maple	■ ■ □	25 – 35 m

Alders

<i>Alnus cordata</i>	Italian alder	■ □ □	20 – 25 m
<i>Alnus rubra</i>	red alder	□ ■ ■	25 – 30 m

Birch

<i>Betula nigra</i>	river birch	□ □ ■	15 – 25 m
<i>Carpinus betulus</i>	hornbeam	□ ■ □	15 – 20 m
<i>Carya ovata</i>	shagbark hickory	□ □ ■	20 – 30 m
<i>Castanea sativa</i>	Spanish chestnut	■ ■ □	25 – 30 m
<i>Celtis occidentalis</i>	American hackberry	■ □ □	20 – 25 m
<i>Cladastria lutea</i>	yellow wood	□ □ ■	10 – 15 m
<i>Cornus mas</i>	cornelian cherry	□ ■ □	5 – 10 m

Beech

<i>Fagus sylvatica</i>	European beech	□ ■ ■	30 – 40 m
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Ashes

<i>Fraxinus angustifolia</i> (syn. <i>oxycarpa</i>)		■ ■ □	20 – 25 m
<i>Fraxinus ornus</i>	flowering ash	■ □ □	10 – 15 m
<i>Fraxinus pennsylvanica</i>	green ash	□ □ ■	20 – 25 m
<i>Fraxinus velutina</i>	ash	■ □ □	9 – 12 m

Walnuts

<i>Juglans ailantifolia</i>	Japanese walnut	□ □ ■	20 – 30 m
<i>Juglans nigra</i>	black walnut	■ ■ □	25 – 35 m
<i>Juglans regia</i>	edible walnut	■ ■ □	20 – 30 m

<i>Liquidambar styraciflua</i>	liquidamber	□ ■ ■	20 – 35 m
<i>Maackia amurensis</i>	amur maackia	■ □ □	10 – 15 m
<i>Maclura pomifera</i>	Osage orange	□ ■ □	8 – 12 m
<i>Parotia persica</i>	Persian ironwood	□ ■ □	10 – 15 m

Planes

<i>Platanus orientalis</i>	oriental plane	□ ■ □	25 – 30 m
<i>Platanus x acerifolia</i>	London plane	□ ■ □	20 – 25 m
<i>Populus hybrids</i>		□ ■ □	20 – 30 m
<i>Pterocarya stenoptera</i>	Chinese wingnut	□ □ ■	15 – 25 m

Oaks

<i>Quercus alba</i>	American white oak	□ ■ □	20 – 30 m
<i>Quercus canar. x robur</i>	Algerian oak	□ ■ □	20 – 30 m
<i>Quercus canariensis</i>	mirbeck oak	■ ■ □	20 – 30 m
<i>Quercus cerris</i>	Turkey oak	□ ■ □	25 – 35 m

Botanical name	common name		height
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Oaks (continued)

		dry moist wet	
<i>Quercus ellipsoidalis</i>	Northern pin oak	□ ■ □	20 – 25 m
<i>Quercus faginea</i>	Portuguese oak	□ ■ □	15 – 20 m
<i>Quercus falcata</i>	southern red oak	□ ■ □	20 – 25 m
<i>Quercus imbricaria</i>	shingle oak	■ □ □	20 – 25 m
<i>Quercus macrocarpa</i>	bur oak	□ □ ■	5 – 10 m
<i>Quercus palustris</i>	pin oak	□ ■ ■	25 – 30 m
<i>Quercus petraea x robur</i>	hybrid English oak	□ ■ ■	25 – 35 m
<i>Quercus pubescens</i>	downy oak	□ ■ □	20 – 25 m
<i>Quercus pyrenaica</i>	Pyrenean oak	■ □ □	15 – 20 m
<i>Quercus robur v fastig.</i>	Upright oak	□ ■ ■	20 – 25 m
<i>Quercus robur</i>	English oak	□ ■ ■	25 – 30 m
<i>Quercus variabilis</i>	Chinese cork oak	■ □ □	20 – 25 m

Cypresses

<i>Taxodium ascendens</i>	pond cypress	□ □ ■	15 – 25 m
<i>Taxodium mucronatum</i>	swamp cypress	□ □ ■	25 – 35 m

Limes

<i>Tilia amurensisa</i>	amur linden	□ □ ■	20 – 25 m
<i>Tilia cordata</i>	small-leaved lime	□ □ ■	20 – 30 m
<i>Tilia platyphyllos</i>	broad-leaved lime	□ □ ■	25 – 35 m

Elm

<i>Ulmus parvifolia</i>	Chinese elm	□ ■ □	10 – 15 m
<i>Zelkova carpinifolia</i>	Caucasian zelkova	□ ■ ■	20 – 25 m

Dry: e.g. suited to the droughty & shallow *Rapaura* soils

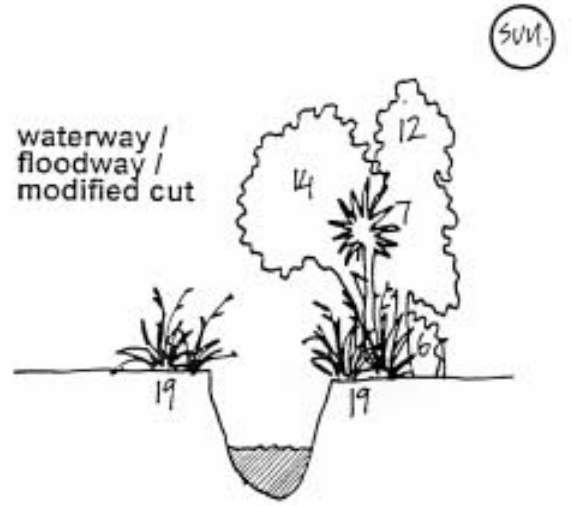
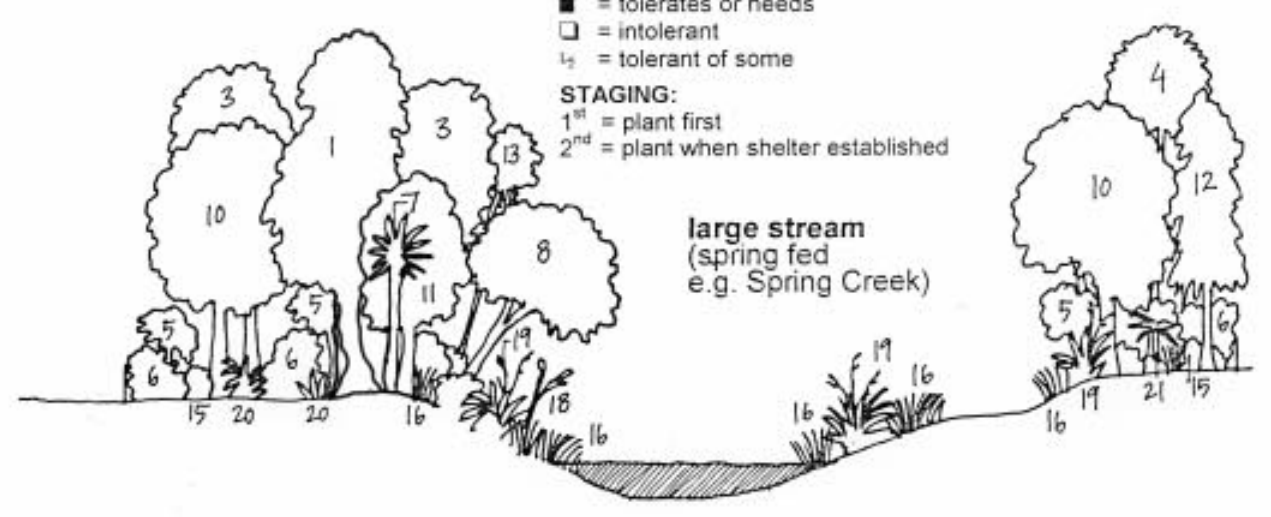
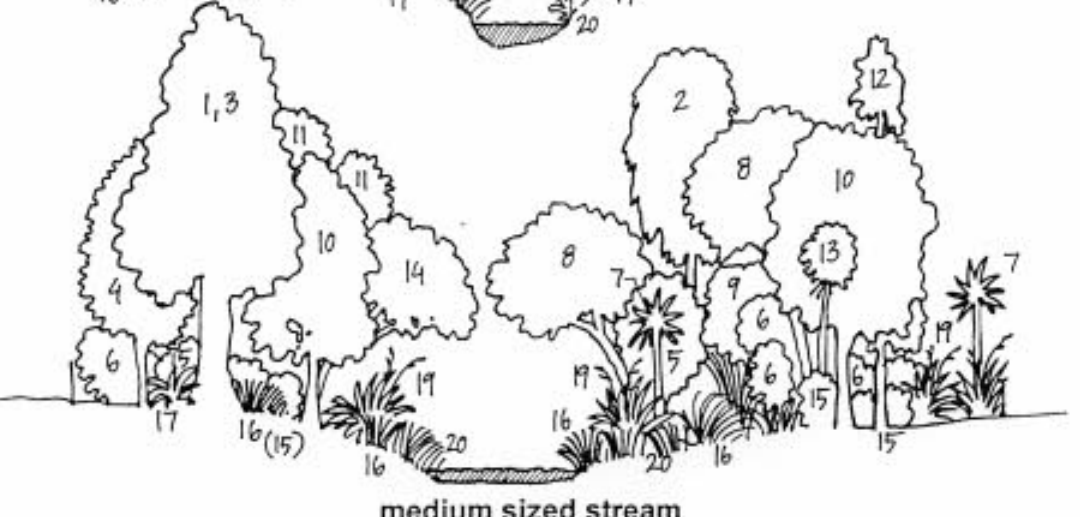
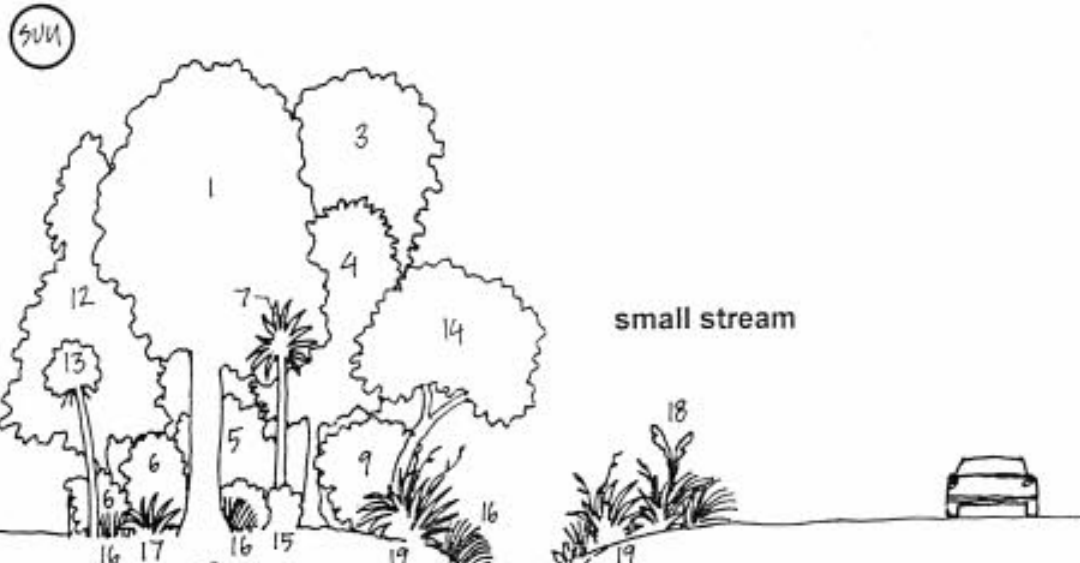
Moist: e.g. suited to *Wairau* & *Gibsons* soils

Wet: e.g. suited to the *Paynter*, *Grovetown* & *Spring Creek* soils

Suitable RIPARIAN plants

Botanical name	common name	food	tolerances	stage
			sun shade moist dry wind	
TALL TREES				
1 <i>Dacrycarpus dacrydioides</i>	kahikatea, white pine	F,I	■ ½ ■ □ ■	2 nd
3 <i>Elaeocarpus dentatus</i>	hinau	F,I	■ ½ ■ □ □	2 nd
3 <i>Prumnopitys taxifolia</i>	matai, black pine	F,B,I	■ ½ ■ ½ ■	2 nd
TREES & TALL SHRUBS				
5 <i>Aristotelia serrata</i>	makomako, wineberry (semi-deciduous)	F,B,I	½ ½ ■ ½ □	2 nd
5 <i>Carpodetus serratus</i>	putaputaweta, marbleleaf	F,B,I	½ ■ ■ □ □	2 nd
6 <i>Coprosma lucida; C. robusta</i>	karamu	F	■ ■ ■ ■ ■	1 st
6 <i>Coprosma linariifolia</i>	narrow-leaved coprosma, yellow-wood	F,N,L	½ ■ ■ ½ ½	1 st
7 <i>Cordyline australis</i>	ti kouka, cabbage tree	F,N,I	■ ½ ■ ■ ■	1 st
8 <i>Dodonaea viscosa</i>	akeake		■ □ □ ■ ■	1 st
9 <i>Griselinia littoralis</i>	kapuka, broadleaf	F,B,N,I	■ ■ ■ ■ ■	2 nd
10 <i>Hoheria angustifolia</i>	houhere, narrow-leaved lacebark	I	■ ½ ■ ■ ■	1 st
5 <i>Melicytus ramiflorus</i>	mahoe, whiteywood	F,N,B,I	½ ■ □ ½	2 nd
8 <i>Myoporum laetum</i>	ngaio	F,N	■ □ ■ ■ ■	1 st
4 <i>Pennantia corymbosa</i>	kaikomako	F,N,I	½ ½ ■ □ ½	2 nd
11 <i>Pittosporum eugenioides</i>	tarata, lemonwood	F,I	■ ■ ½ ■ □	2 nd
11 <i>Pittosporum tenuifolium</i> ssp. <i>tenuifolium</i>	kohuhu, black matipo	F,I	■ ■ ■ ■ ■	1 st

Botanical name	common name	food	tolerances	stage
			sun shade moist dry wind	
TREES & TALL SHRUBS (continued)				
12 <i>Plagianthus regius</i>	manatu, lowland ribbonwood (deciduous)	F,I	■ ½ ■ ½ ■	1 st
8 <i>Pseudopanax arboreus</i>	fivefinger, whauwhaupaku	F,N,I	■ ■ ½ ½ ½	2 nd
13 <i>Pseudopanax crassifolius</i>	lancewood, horoeka	F,B,N,I	■ ½ ■ ■ ■	2 nd
13 <i>Pseudopanax ferox</i>	fierce lancewood	F,B,N,I	■ ½ ■ ■ ■	2 nd
14 <i>Sophora microphylla</i>	South Island kowhai (toxic seeds)	N,I	■ ½ ½ ■ ■	2 nd
5 <i>Streblus heterophyllus</i>	turepo, small-leaved milk tree	F	½ ■ ■ □ □	2 nd
SHRUBS				
6 <i>Cop' crassifolia; C. grandifolia</i>	thin-leaved & large leaved coprosmas	F,I,L	■ ■ ■ ■ ■	2 nd
6 <i>Coprosma propinqua</i>	mikimiki, mingimingi	F,I,L	■ ■ ■ ■ ■	1 st
6 <i>Coprosma rotundifolia</i>	round-leaved coprosma	F,I	½ ■ ■ ½ ½	2 nd
6 <i>Coprosma rubra</i>	red-stemmed coprosma	F,I,L	■ ½ ■ ½ ■	2 nd
15 <i>Hebe gracillima, H. salicifolia</i>	koromiko	I	■ ½ ½ ½ ■	1 st
5 <i>Melicope simplex</i>	poataniwha	F,I	½ ■ ■ □ ■	2 nd
6 <i>Muehlenbeckia astonii</i>	shrubby tororaro / bush pohuehue	F,L	■ □ ½ ■ ■	1 st
GROUNDCOVERS				
16 <i>Anemanthele lessoniana</i>	bamboo grass, wind grass		■ ■ ■ ■ ■	1 st
17 <i>Astelia fragrans</i>	bush flax, kakaha	F,I	½ ■ ■ □ □	2 nd
16 <i>Carex comans</i>	tussock sedge, maurea	F	■ □ ½ ■ □	1 st
16 <i>Carex lambertiana; C. solandri</i>	sedges		■ ½ ■ □ □	1 st
16 <i>Carex secta</i>	pukio, tussock sedge	F	■ ½ ■ □ □	1 st
18 <i>Cortaderia richardii</i>	toetoe, (toitoi)		■ □ ■ ■ ■	1 st
19 <i>Phormium tenax</i>	harakeke, NZ flax	N,L	■ □ ■ ■ ■	1 st
16 <i>Poa cita</i>	silver tussock, wiwi	F	■ □ ■ ■ ■	1 st
16 <i>Uncinia spp.</i>	hookgrasses		□ ■ ■ □ □	1 st
FERNS				
20 <i>Blechnum minus</i>	swamp kiokio		■ ■ □ □ □	2 nd
20 <i>Blechnum novae zelandiae</i>	kiokio, small hardfern		■ ½ ■ □ □	2 nd



KEY No's refer to plants shown on cross sections

FOOD for native birds shown as:
 F = Fruit / seed;
 N = Nectar;
 B = Bud foliage and
 I = Insects.
 L = Fruit for Lizards

PLANT TOLERANCES:
 For sunny, shady, moist, dry and
 windy conditions shown as:
 ■ = tolerates or needs
 □ = intolerant
 ½ = tolerant of some

STAGING:
 1st = plant first
 2nd = plant when shelter established

Wairau Plain MASS PLANTING GUIDELINES

SITE PREPARATION



If using chemicals, blanket spray the entire area to be planted. Avoid spray drift going onto any existing native plants. Use biodegradable herbicides. Only spray in warm, still conditions with a knapsack sprayer. Spray at least 10 days prior to planting. Or, manually clear the area of unwanted growth.

Organise planting days for either Autumn, late winter or early Spring when weather and ground conditions are moist.



Keep organised. Lay the different species out in groups of the same species. Keep plants in a shady, cool spot if possible, keep watered and make sure plants are put into the ground soon after arriving on site.

Keep tools and footwear clean before entering the planting area to prevent weed invasion.

PLANTING



Pick up the plants by the container, not the foliage and go and find the appropriate area or ground condition for each plant. See the notes on the plant schedule to double check what the particular conditions are that your plant likes.

If the plants are supplied in long narrow root trainers, don't separate each plant from the RT (root-trainer) 'book' yet as the roots will dry out, killing the plant. Take the whole RT book and mass plant the four plants in one group at the appropriate spacings.



Screen the turf off the spot to dig the hole. Leave a bare 'target' patch of earth 1 m in diameter.



Dig the hole at least twice the size of the plant's container in all directions. Shatter the sides and bottom of the hole (in drier spots) to help the roots spread out and down.



Tease out the roots if they are compacted or root bound. Roots should be loose. Expose the longer roots and cut back with secateurs.



Fill the bottom third of the hole with loose soil. Place plant gently in and pack soil firmly and evenly around the roots. Firm down in layers to prevent air gaps. Don't put stones back in the hole - only soil.



In areas permanently wet, leave the top of the root mass at or above the existing ground surface level.

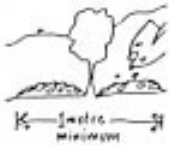


But the most important thing is to set the plant so that the soil level comes to the same point on the stem as it was when it came out of its container.

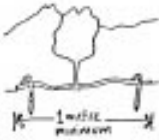


Give each plant 2 litres of water immediately after planting and just before mulching. This won't be necessary if you are planting in a waterlogged area.

MULCHING



Mulch with a minimum of 10cm of bark chips, newspaper (weighted down with bark chips), woollen mats, non-rubberised carpet underlay or any biodegradable material. Don't mulch on wet soils or in areas prone to waterlogging.



Make sure that any material that can catch the wind and blow is either weighted down or pinned down with bent no'8 wire 'staples' every half metre. Don't let the mulch build up against the stem.

PEST CONTROL



To stop rabbits and hares eating or damaging the plants, either spray on a suitable natural and biodegradable repellent, especially around the stem and spread in an area at least 40 cm radius on the ground around the plant. This will need to be re-applied regularly as over time rain will wash it away.



Or use a rabbit sleeve on plants with an upright growth habit. Drive 3 or 4 stakes firmly in around the plant to hold the plastic sleeve away from the plant, allowing it to breathe. Pin the sleeve down with bent no'8 wire to stop rabbits etc nosing under by lifting the sleeve. Remove these after 3 years or when the plant has grown tall enough that it won't be targeted. Leave grass long between different groups of plants - rabbits and hares don't like brushing through grass.

Monitor pests in the planted areas and their surroundings - possums, rabbits, hares, mustelids. When monitoring indicates, undertake pest control using one of the many approved methods. If the use of trapping, shooting or pesticides is envisaged, the animal welfare and other regulations covering these methods should be adhered to. View Marlborough District Council's website www.marlborough.govt.nz

PLANT MAINTENANCE



Stake the plant. For the first 1-2 years, the plant may not be visible above surrounding weed and grass growth making the plants hard to spot when checking needs to be done.



Regularly maintain. Replace any plants that die. Keep weeds away from the base of the plant. With close rather than far spacings, the plants will soon merge together, preventing light from striking the ground, allowing weeds to germinate. This maintenance will need to be done on a six monthly basis, for the first two or three years or until the area is self maintaining.

Do regular fence checks (generally around the perimeter of the valley and road boundaries) to make sure stock hasn't caused damage and gained access to the planted areas. This needs to be carried out on an ongoing basis indefinitely.

Once there is full canopy closure, the planted area can be 'beefed' up with interplanting in long term and special species appropriate to the ecosystem and microsite.



Sit back and look at the forest you have helped create, bringing back the birds and other animals, providing enjoyment for many generations to come.