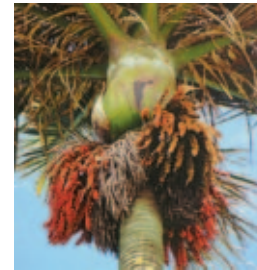


A Guide to **GROWING NATIVE PLANTS** *in* **KAPITI**

CONTENTS

2. Knowing Your Local Conditions
 4. Dunelands
 8. Lowland Terraces
 9. The 'Nikau Belt'
 10. 'Kamahi Country'
 11. Birds in Your Garden
 12. Gardening
 14. Pests
 15. Being Water-Wise
- References

Some local plants that remind us of our past . . . but also our future potential



Nikau thrive in moist, sheltered, frost-free sites. The shelter they need, however, is long gone from most areas. We see old nikau in open pasture because, being monocotyledons, they are simply very hard to kill. For nikau to thrive and reproduce once more we must restore shelter - and in doing so we encourage kereru (NZ pigeon) to visit and spread their seed.



Kohekohe, a dominant tree in mild-climate forests which receive year-round moisture, impresses with its winter flowering. In summer, large seed capsules develop that by early winter have split open to reveal orange fleshy seeds. The luxuriant flowering illustrated here is only possible where possums have been eradicated.



Pingao (illustrated) and spinifex are two native species adapted to life in the shifting foredunes where they help create smooth dune profiles. Destabilisation of dunes by pastoralism in the 19th century led to mass planting of marram grass and lupin which formed new dunes, but ones with erodable, steep profiles. To re-establish pingao now we need to control rabbits as well as marram.

KNOWING YOUR LOCAL CONDITIONS

The zones shown here describe areas which share similar ecological conditions. They are different from their neighbouring zone in some way - perhaps salt is a limiting factor, perhaps the area is frost-free or the combination of low summer

rainfall and readily draining soils results in summer drought.

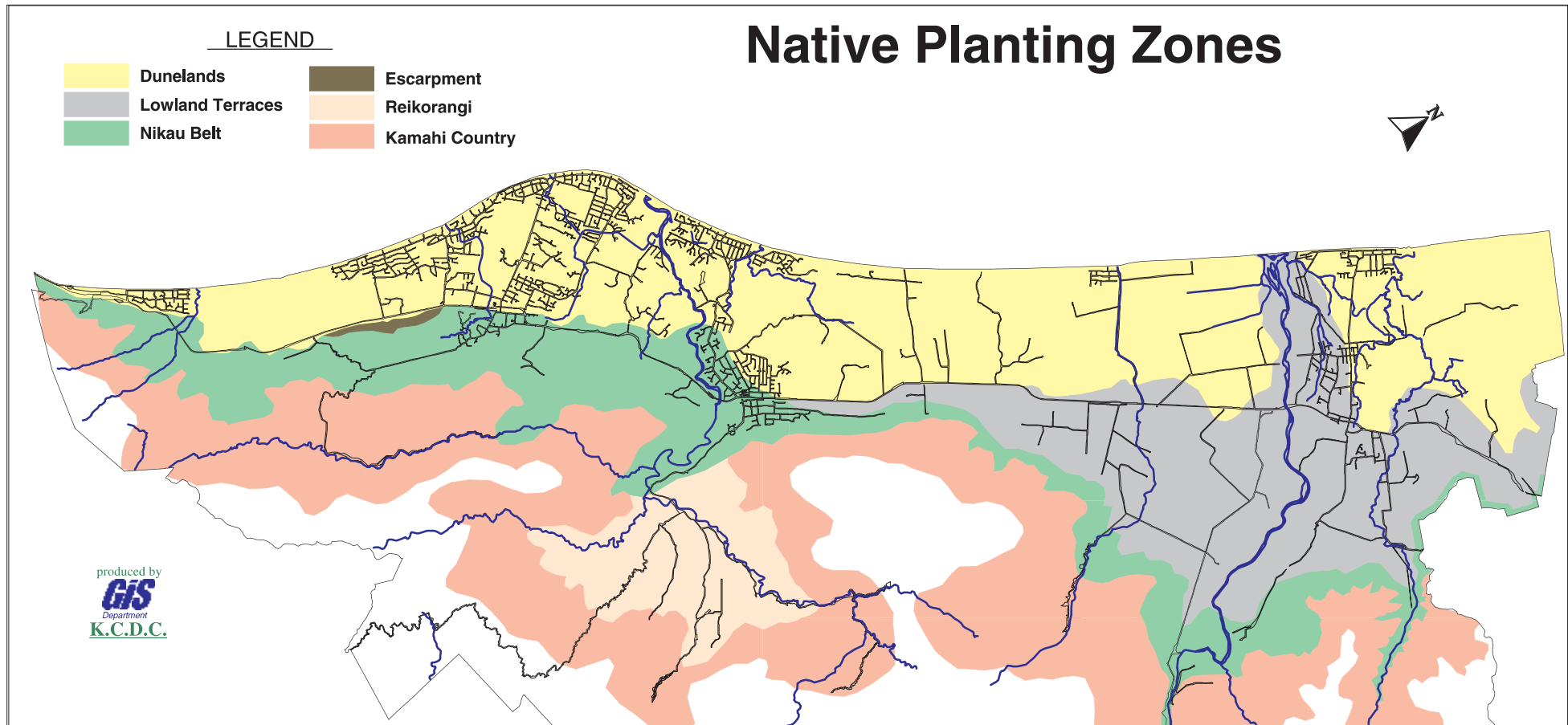
The patterns of plant succession or valley/spur vegetation will be similar within each zone but will differ from a neighbouring zone. You can also recognise local

characteristics in wildlife communities (and farming practices, garden styles and even the weeds you'll encounter).

We give a brief overview of the zones. The boundaries will be blurred in reality - but you will be able to recognise where your

property fits into the picture, and some of the local characteristics you could consider when you plan your planting.

The following pages list plants which are suited to the local conditions and which reflect the natural (native) local vegetation.



DUNELANDS (1)

Salt, summer drought and winter frosts dictate life in the dunelands. Many of the westerly winds are strong and dry, so without rain to wash salt off plants they really can be killers. Watch too for the infrequent but damaging easterly gales.

The **youngest dunes** have a specialised but limited variety of native plants. This is a shrubland and grassland zone, with some taller growth possible in sheltered hollows. Because frosts are light or lacking, it is habitat for a surprising array of insects. Feeding prospects for insect, seed and small fruit-eating birds like finches, larks and silvereyes are good.

Further inland, **older stable dunes** have thin soils which drain readily and organic matter is rapidly leached away. They can support forest growth, but quickly lose that capacity if cleared. Scattered groups of kanuka, akeake, ngaio and taupata remind us of what bush could have grown. Damp, sheltered hollows allow a greater range of species to grow, but they need to be frost-tolerant ones.

Where peat-filled swamps between dunes have been drained and developed for housing, peat has been replaced with hardfill and peaty sand which creates a whole new ecological zone! Treat these areas the way you would treat dry dunes, but remember the effect of peat on lowering the pH.

It is the patchwork of contrasting wet and dry areas which gives the duneland its ecological interest. Water dominates natural duneland, for two reasons. In some places new dunes have blocked the flow of streams to the beach, creating swamps. In other places **sand plains** created by wind scouring expose the water-table and small lakes and swamps are created, or the compacted surface prevents heavy rainfall from draining away.

The inter-connectedness of water through

the duneland has huge implications for distribution of pollutants, and for effects of drainage and subsequent loss of swamp habitat for plants, birds (especially coastal species and water-fowl) and fish (such as eel, mudfish, inanga). As many people have discovered, what we do to one property can affect distant neighbours.

LOWLAND TERRACES (2)

Like the duneland this zone also has very seasonal rainfall (dry summers) and experiences frosts but wind and salt have less of an influence. The alluvial and silty soils of the old river terraces are deep and fertile but drain freely, often drying out in summer. Some of the silts may be heavy in winter; to a plant that is similar to a drought. Good drainage is a mixed blessing as pollutants drain into alluvial aquifers that supply many farms.

Totara, titoki and, where there is shelter, kohekohe are visually dominant native trees here - they cope well with seasonally dry soils and have tolerated grazing. Smaller trees and shrubs tend to be small-leaved species.

The 'NIKAU BELT' (3)

This area has a mild, moist climate year-round, generally frost free (especially along the banks of rivers, or where rivers issue from the mountains and there is a constant draining of air that reduces frost). There is enough shelter or distance from the sea for salt winds not to be a problem. Soils are mostly weathered clays and stabilised screes coated in loess, although this ecological zone extends out across the lowlands in places where a mild climate counteracts the effects of free drainage. Slopes without vegetation cover are prone to erosion during high rainfall.

Plant succession here progresses from tauhinu to manuka then to kohekohe and tawa over large-leaved understorey species,

with nikau and pukatea in moist, sheltered sites. This is the characteristic forest we still see in pockets today - a fresh green canopy dotted with olive crowns of tawa. Because tawa is so sensitive to exposure, kohekohe is often at an advantage in a regenerating forest, and you will see many smooth-canopied stands of pure kohekohe. Tawa will be more conspicuous on south-facing cool and sheltered sites. The upper limit of this zone is around 150-200 metres.

ESCARPMENT (4) not detailed in this booklet

The vegetation on these steep slopes of thin soils and mobile screes reflects both the mild, moist climate *and* the effect of salt-laden westerlies along with extreme drainage! So we find leathery leaved tree daisies, hardy pittosporums, ngaio and karaka along with the more temperate species like kohekohe, titoki and mahoe.

REIKORANGI (5)

This extensive hill-surrounded valley system, where four rivers have down-cut into a basin filled with deep, fertile, glacial gravels, has some unique characteristics that separate it, ecologically, from other zones in the area.

Cold air draining into the valleys effectively creates a mountain environment at low levels - one with heavy frosts and even snow! For the purposes of gardening, however, we have combined it with 'Kamahi Country'.

'KAMAHI COUNTRY' (6)

Year-round rainfall and cool temperatures on these old weathered soils has created acidic conditions, but luxuriant forest growth. Large-leaved species such as rangiora, wineberry, five finger and lemonwood are common in the second growth and the forest understorey, with disturbed bush particularly rich in climbers and tree ferns.

Forest succession starts with tauhinu and manuka and moves on to kamahi (abundant enough to lend its name to this zone), rewarewa, five finger and tree ferns. A mature forest will contain northern rata, rimu and white maire over a tawa canopy.

Properties near bush will enjoy the spillover of forest wildlife such as ruru (morepork), kereru (NZ pigeon), whitehead, rirorio (grey warbler), bellbird and tui.

KEY to the following pages:

pata *Coprosma* (*shaded*) known to be local species, historically, and should cope with most garden situations

rengarenga *Ar* (*unshaded*) not native to this area, but suited to the habitat described

nuka *Leptospe* (*underlined*) good plants to use as 'nursery crops' and for quick shelter

Note: the species listed are ones that should do well in the modern garden or bush-edge environment. No attempt is made to list *all* species likely to have grown in the area. Our emphasis is on species native to *this* area, suited to our conditions - we think they give plenty of gardening scope, and a reliable framework to work within.



Foredunes run the entire length of Kapiti-Horowhenua. South of Waikanae, however, we are gradually losing that line of dunes to the sea. The remnants are shored up with walls and groynes. North of Waikanae, although the foredunes are surviving, stabilisation is an ongoing concern. So how people garden here is

important for the entire neighbourhood. The pressures of human trampling, rabbit browse and storm events on the foredune vegetation can often be overcome by the home gardener as well as by local authorities!

Factors for gardeners to consider:

☀ The prevailing west-to-north-westerlies

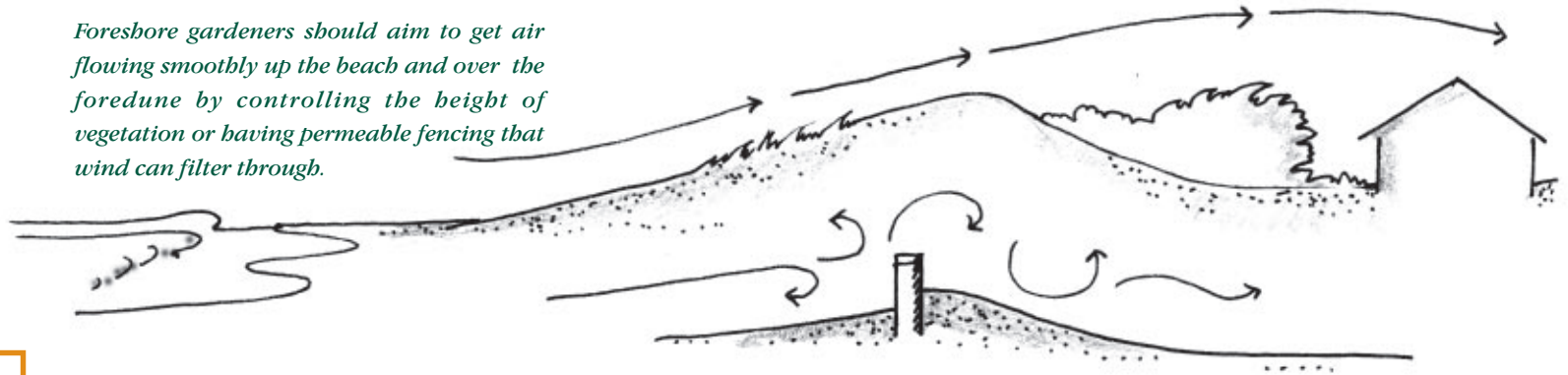
are drying, salty and ensure constant sand-drift inland. There are summer droughts, and this is when most salt damage can occur. ☀ The dunes are not only low in nutrient but without organic content, they drain and dry rapidly. If you add organic material, you must keep on adding it, for it will break down quickly in these

conditions. ☀ Frost should not be a problem here.

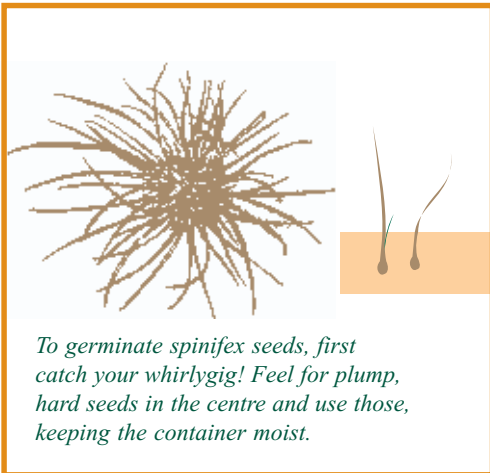
Design interest: Few species, but colourful & texturally interesting. They suit massing together in informal groups which reflect the underlying landforms.

It is not just the action of waves that causes coastal erosion during storms - turbulent wind increases the damage.

Foreshore gardeners should aim to get air flowing smoothly up the beach and over the foredune by controlling the height of vegetation or having permeable fencing that wind can filter through.



Solid fences, walls and shelterbelts will only make the turbulence, and wind erosion, worse.



To germinate spinifex seeds, first catch your whirlygig! Feel for plump, hard seeds in the centre and use those, keeping the container moist.

in the lee

- small leaved pohuehue** *Muehlenbeckia complexa*
- autetaranga, sand daphne** *Pimelea arenaria*
- sand coprosma** *Coprosma acerosa*
- waiuatua, shore spurge** *Euphorbia glauca*
- taupata** *Coprosma repens*
- tauhinu, cottonwood** *Cassinia leptophylla*
- piripiri, bidibidi** *Acaena novae-zelandiae*
- mingimingi** *Coprosma propinqua*
- Eleocharis neozelandica*
- ngaio** *Myoporum laetum*
- akeake** *Dodonaea viscosa*
- whau** *Entelea arborescens*

seaward side (spreading plants)

- nihinihi, shore bindweed** *Calystegia soldanella*
- pingao** *Desmoschoenus spiralis*
- spinifex** *Spinifex sericeus*
- sand sedge** *Carex pumila* (on moist sites)
- tatarakeke, sand coprosma** *Coprosma acerosa*
- horokaka, ice plant** *Disphyma australe*
- NZ spinach** *Tetragonia trigyna*

Dunes increase in age as you travel inland and their soils mature accordingly. Between the dunes there are often flat sandplains and hollows created by wind-scouring where the soil is damp. Much of our urban development occurs in this zone and not all the dunes have survived bulldozing, so soils may be less developed

than expected. Successful planting relies on matching the dry/damp patterns and using hardier species in sites exposed to dry salty winds.

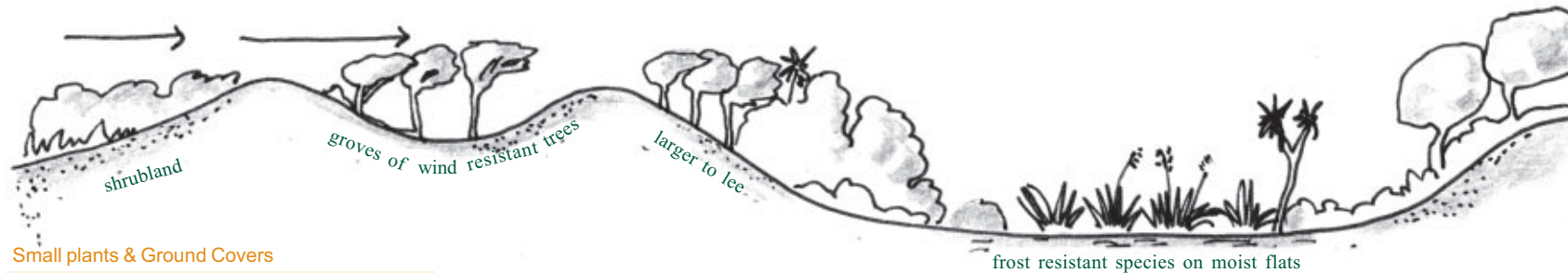
Factors for gardeners to consider:
 ☀ Use salt-resistant species to create shelter for other plants. ☀ Frost is an issue - although less to the south where

air drainage off the hills helps prevent frost. Plants listed have an asterisk if they are frost-tender. ☀ The entire area experiences summer drought. Mulching with a heavy chip (that will not blow away) will help plants establish. ☀ In these sandy soils organic matter will break down rapidly. To recreate the old forest fertility

we need to replenish soils regularly with organic compost.

Design interest: Kanuka and akeake, if left unpruned, have attractive, wind-shaven forms that have become key visual focal points in this landscape.

Prunable hedges: taupata, akeake, olearia
Street trees: karaka, akeake, ngaio, mahoe, kanuka



The copper butterfly is abundant on the coast because that's where its native host plant pohuehue or *Muehlenbeckia* grows densely. *M. complexa* is a versatile plant - it even makes a great hedge when grown along a wire netting fence - and is a popular pot plant overseas.

Small plants & Ground Covers

- petako, sickle spleenwort** *Asplenium polyodon*
 - huruwhenua, shining spleenwort** *Asplenium oblongifolium*
 - mingimingi** *Cyathodes fasciculatus*
 - mingimingi** *Coprosma propinqua*
 - Coprosma rigida*
 - taupata** *Coprosma repens*
 - coastal tree daisy** *Olearia solandri*
 - tauhinu** *Cassinia leptophylla*
 - korokio** *Corokia cotoneaster*
 - Juncus australis* (tolerates dry conditions)
 - hibiscus** *Hibiscus trionum*
 - rengarenga** *Arthropodium cirratum*
 - ngutukaka, kakabeak** *Clianthus puniceus*
- Climbers**
- kaiwhiria, native jasmine** *Parsonsia capsularis*
 - puataua** *Clematis forsteri*

Trees - on younger dunes & dry sand plains

- ngaio** *Myoporum laetum*
- kanuka** *Kunzia ericoides* - survives best planted in groves
- akeake** *Dodonaea viscosa*
- taupata** *Coprosma repens*
- rautini, Chatham Is. akeake** *Senecio huntii*
- whau*** *Entelea arborescens*

Trees - older dunes with soils. As above, plus:

- titoki*** *Alectryon excelsus*
- akiraho** *Olearia paniculata*
- mahoe** *Meliccytus ramiflorus*
- kowhai** *Sophora microphylla*
- mapou** *Myrsine australis*
- kaikomako** *Pennantia corymbosa*
- matai** *Prumnopitys taxifolia*

Moist sand plains & hollows - low stature . . .

- remuremu** *Selliera radicans*
- shore pimpernel** *Samolus repens*
- Gunnera arenaria*
- sand buttercup** *Ranunculus acaulis*
- panakenake** *Pratia angulata*
- libertia** *Libertia perigrinans*
- Carex flagellifera*
- sand sedge** *Carex pumila*
- blue wheat grass** *Agropyron scabrum*
- toetoe** *Cortaderia toetoe*
- haraheke, swamp flax** *Phormium tenax*
- rengarenga** *Arthropodium cirratum*
- shore fuchsia *** *Fuchsia procumbens*

. . . and taller species

- cabbage tree** *Cordyline australis*
- karaka** *Corynocarpus laevigatus*
- kahikatea** *Dacrycarpus dacrydioides*



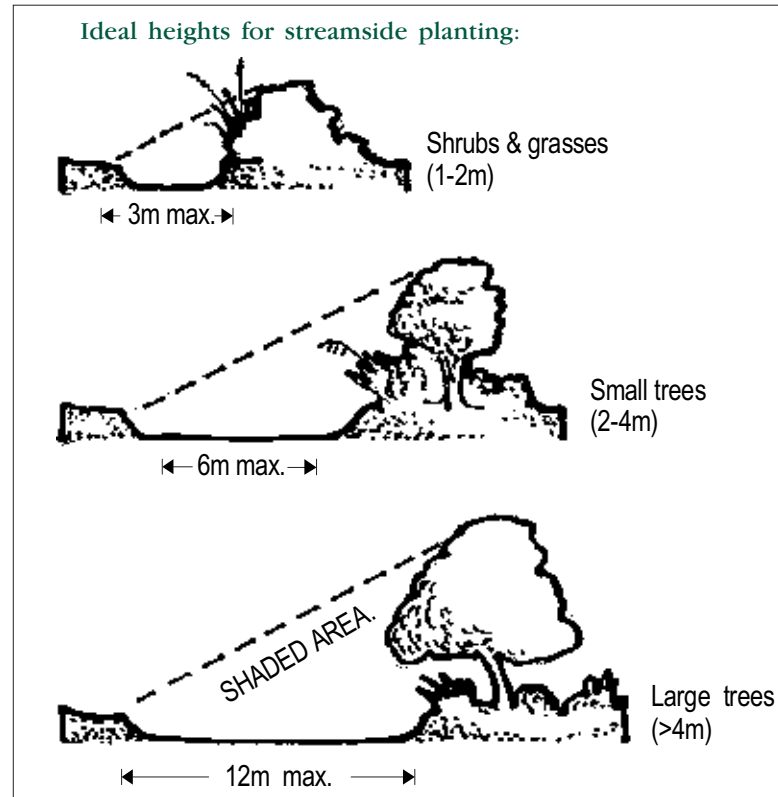
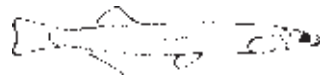
Streams in the duneland are mostly deep, meandering channels with steep, eroded banks. Plants suited to growing on their banks will be ones which cope with dry, well-drained sites, not 'wet feet' sites.

- They act as visual corridors through the landscape but many of their natural

courses have been straightened (which speeds up their flow and erosional energy), they are treated as drains for farm effluent and stormwater, and most have lost any streamside (riparian) vegetation. Our planting plans will help restore vitality to those waterways.

- Inanga (adult whitebait) spawn within streamside grasses and reeds hundreds of metres from the coast, where salt water turns to fresh water on the spring tide. This is another argument for keeping stock or mowers away from stream edges and to allow plants to grow which will minimise erosion along the stream banks.

- Overhanging vegetation contributes to the shading and nutrient supply for all manner of stream life. Native, evergreen vegetation is better than deciduous vegetation as both shading and nutrient will be constant year-round.



Stream banks

- kowhai** *Sophora microphylla*
- ngaio** *Myoporum laetum*
- koromiko** *Hebe stricta*
- muakaro, scented broom** *Carmichaelia odorata*
- tree tutu** *Coriaria arborea* (poisonous fruit)
- toetoe** *Cortaderia toetoe*

Swamps and ponds created by poor drainage will have a fluctuating water level - suited to plants which tolerate occasional or seasonal waterlogging. Wet areas created by a high water-table generally have a more stable water-level, and plants grow in zones around the edges according to their tolerance of

water-logging. Much wetland has been lost (and wildlife habitat with it) so recreating swamps and ponds is a positive contribution to local ecology.

Factors for gardeners to consider:

☀ Peaty soils, when drained, shrink and prove difficult to manage. You could add topsoil or sand to condition the garden.

☀ Avoid planting raupo in ponds with high nutrient levels - it will soon choke the pond. The flip side is raupo is good for filtering grey water - as are *Schoenoplectus validus* and *Baumea articulata* ☀ Give priority to planting banks above wetlands that are surrounded by rural land. Plants may help filter the high nitrogen levels in seepage and runoff.

Swamp flax (harakeke) and coastal flax are different species. You won't find much coastal flax growing in this area as it commonly grows on well-drained rocky sites. But you will find lots of large swamp flax (*Phormium tenax*) growing where the soil is damp year-round. Its seed pods are erect (on coastal flax they hang down and are twisted).



Designing a wetland? Small gestures for local wildlife go a long way.

A stump or dead tree overlooking the water is a natural vantage for shags and kingfishers.

An island in a pond can provide a predator-free roosting site for waterfowl.

Dabblers and swamp birds like the shelter of overhanging pond-side vegetation; ducks like a grassy bank for access - so provide both.

Damp raised ground (or occasional waterlogging)

- manuka** *Leptospermum scoparium*
- koromiko** *Hebe stricta* var. *atkinsonii*
- karamu** *Coprosma robusta*
- hukihuki, swamp coprosma** *Coprosma tenuicaulis*
- Olearia virgata*
- toetoe** *Cortaderia toetoe*
- cabbage tree** *Cordyline australis*

Damp edges & hollows

- cabbage tree** *Cordyline australis*
- harakeke, swamp flax** *Phormium tenax*
- Carex virgata*

Wet edges

- pukio** *Carex secta*
- Carex geminata*
- Carex lessoniana*
- upoko tangata, giant umbrella sedge** *Cyperus ustulatus*
- wiwi, sea rush** *Juncus maritimus*
- jointed wire rush, oi oi** *Leptocarpus similis*
- raupo** *Typha orientalis*
- kapungawha, lake clubrush** *Schoenoplectus validus*

LOWLAND TERRACES



The character of remnant patches of native growth on the free-draining lowlands today is dominated by totara, with groves of kohekohe, titoki and matai where bush has been protected from stock. The understorey shrubs are mostly hardy, small-leaved and divaricating species which make interesting garden plants.

Even though this area is devoted to horticulture and grazing, native vegetation plays a dominant role in the landscape, giving residents a 'framework' on which to build a visually sympathetic garden.

Factors for gardeners to consider:

☀️ The combination of good drainage, drying winds and summer drought, plus

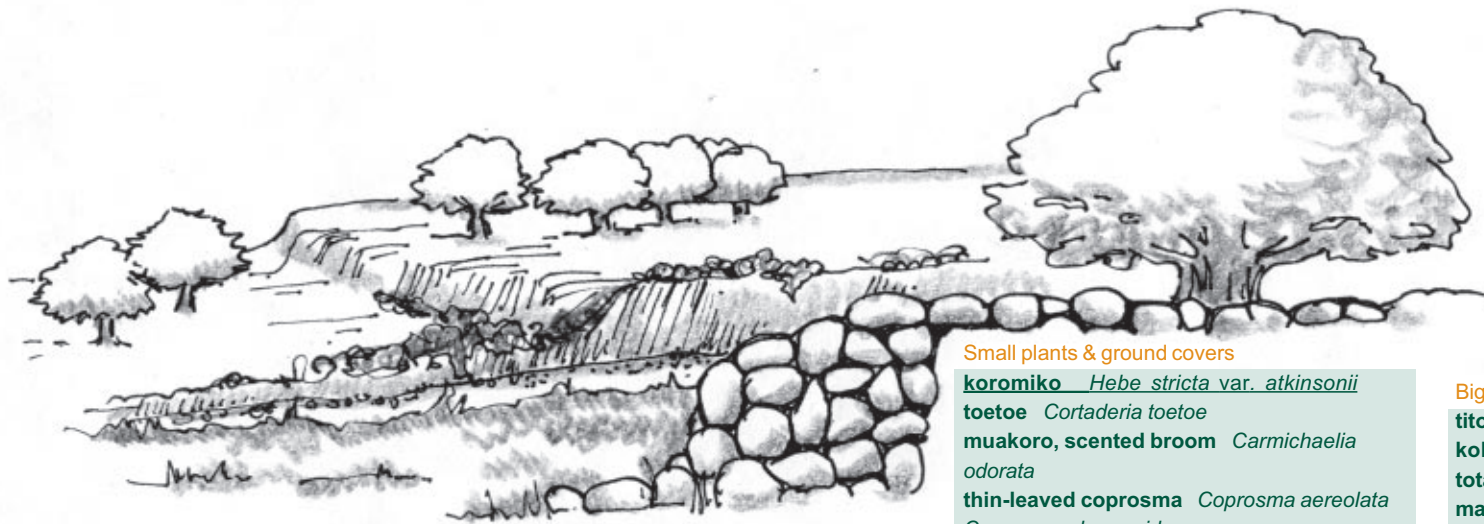
frost - or the clay-rich silts that are heavy in winter and dry in summer, reduces the range of plants that will do well without shelter. So, firstly, concentrate on providing shelter! Plants listed have an asterisk if frost-tender when young. The banks of larger streams will be frost-free so tender plants like tree ferns and kawakawa may do well in sites that are

not exposed to wind.

Design interest: Stone walls are part of the alluvial lowland scenery. The remnant patches of native trees have rounded crowns - this is a 'soft' landscape.

Prunable hedges: kohuhu, mapou

Street trees: titoki, totara, mahoe, kaikomako



Small plants & ground covers

- koromiko** *Hebe stricta* var. *atkinsonii*
- toetoe** *Cortaderia toetoe*
- muakoro, scented broom** *Carmichaelia odorata*
- thin-leaved coprosma** *Coprosma aereolata*
Coprosma rhamnoides
- stiff stemmed coprosma** *Coprosma crassifolia*
Hydrocotyle novae-zealandiae (moist, shaded ground)
- mikoikoi, NZ iris** *Libertia ixioides*
- bush rock lily** *Arthropodium candidum*
- raupeka** *Earina autumnalis* (orchid)
- peka a waka** *Earina mucronata* (orchid)
- coastal astelia** *Astelia banksii* (part shade)
Carex solandri
- wind grass** *Anamanthele lessoniana* (semi-shade)



It's one thing to be certain how many years cicada pupa stay underground but it clearly helps if you don't dig around the base of your trees!

Big trees

- titoki*** *Alectryon excelsus*
- kohekohe** *Dysoxylum spectabile*
- totara** *Podocarpus totara*
- matai** *Prumnopitys taxifolia*

Small trees

- manuka** *Leptospermum scoparium*
- poataniwha** *Melicope simplex*
- wineberry** *Aristotelia serrata*
- kaikomako** *Pennantia corymbosa*
- mapou** *Myrsine australis* - good in dry sites
- kowhai** *Sophora microphylla*
- kawakawa** *Macropiper excelsum*
- mahoe, whiteywood** *Melicytus ramiflorus*
- wharangi** *Melicope ternata*
- kohuhu** *Pittosporum tenuifolium*

Ferns (all prefer semi-shade)

- huruhuruwhenua, shining spleenwort**
Asplenium oblongifolium
- manamana, hen & chicken** *Asplenium bulbiferum*
- panako, thread fern** *Blechnum filiforme*
- tarawera, button fern** *Pellaea rotundifolia*
- hounds tongue** *Phymatosorus pustulatus*
- ponga, silver tree fern** *Cyathea dealbata*
- wheki** *Dicksonia squarrosa*

Climbers

- kaiku, NZ jasmine** *Parsonsia heterophylla* - not *P. capsularis* which prefers drier habitat
- akatea, small white rata** *Metrosideros perforata*
- climbing fuchsia** *Fuchsia perscandens*
Clematis foetida (yellow flowers)
- puataua** *Clematis forsteri*



The combination of low frost frequency, year-round soil moisture and reasonably nutritious soils create a mild, productive growing environment. With shelter, trees like tawa and nikau find the humidity they thrive in. Fragments of mature forest (seen near Emerald Glen or in Nikau Reserve) remind us of the potential lushness of this

environment. Today the zone is important for the density of kohekohe in second growth stands - a tree of moist, coastal areas rapidly disappearing through pressures of lowland development and possum browsing of the remnants.

Factors for gardeners to consider:

☀️ Tawa needs the humidity that good

shelter provides. Mature trees may die if exposed to wind, and juveniles (which make attractive garden plants) also require a draft-free, shady site ☀️ your gardens are a vital link for birds moving down into the lowlands from the Tararua foothills. They'll appreciate continuous plantings.



Design interest: Apart from tawa and titoki's olive green crowns, the palette here is a distinctive fresh green, with kohekohe, mahoe, kawakawa and hangehange the greatest contributors. Sizeable clusters of trees tend to nestle into the landforms - this can be mimicked on a smaller scale with low vegetation around buildings.

Prunable hedges: Lemonwood, kohuhu, poroporo

Street trees: Kohekohe, titoki, lacebark, turepo

Big trees

- kohekohe** *Dysoxylum spectabile*
- cabbage tree** *Cordyline australis*
- rewarewa** *Knightia excelsa*
- titoki** *Alectryon excelsus*
- tawa** *Beilschmedia tawa*
- turepo, small leaved milk tree** *Streblus heterophyllus*

Small trees

- manuka** *Leptospermum scoparium*
- karamu** *Coprosma robusta*
- wharangi** *Melicope ternata*
- wineberry** *Aristotelia serrata*
- lacebark** *Hoheria sexstylosa*
- kawakawa** *Macropiper excelsum*
- mahoe** *Melicytus ramiflorus*
- pigeonwood** *Hedycarya arborea*
- kotukutuku, tree fuchsia** *Fuchsia excorticata* (moist sites)
- kohuhu** *Pittosporum tenuifolium*
- kanono** *Coprosma grandifolia*
- lemonwood** *Pittosporum eugenioides*
- nikau** *Rhopalostylis sapida* - (shelter)
- rangiora** *Brachyglottis repanda* (understorey)

Small Plants & Ground Covers

- maukoro, whip broom** *Carmichaelia flagelliformis*
- maukoro, scented broom** *Carmichaelia odorata*
- koromiko** *Hebe stricta* var. *atkinsonii*
- koromiko** *Hebe parviflora*
- poroporo** *Solanum aviculare*
- hangehange** *Geniostoma rupestre* var. *ligustrifolium* (shade)
- mikoikoi, NZ iris** *Libertia ixioides*
- turutu, NZ blueberry** *Dianella nigra*
- panakenake** *Pratia angulata*
- raupeka** *Earina autumnalis* (orchid)
- peka a waka** *Earina mucronata* (orchid)

Ferns

- huruwhenua, shining spleenwort** *Asplenium oblongifolium*
- panako, thread fern** *Blechnum filiforme*
- tarawera, button fern** *Pellaea rotundifolia*
- hounds tongue** *Phymatosorus pustulatus*
- wheki** *Dicksonia squarrosa*

Climbers

- NZ jasmine** *Parsonsia heterophylla*
- akatea, pink rata vine** *Metrosideros diffusa*
- rata vine** *Metrosideros fulgens*
- puawananga, bush clematis** *Clematis paniculata*
- kohia, NZ passionvine** *Passiflora tetrandra*
- kiekie** *Freycinetia baueriana* ssp *banksii*

'KAMAHI' COUNTRY



On the foothills behind the lowlands, or in the Reikorangi Basin, there is plenty of year-round rainfall. As a result the soils are deeply weathered, leached and somewhat acidic. First manuka, and then kamahi dominates the regenerating bush. Like many other hill country trees (rewarewa, northern rata and heketara in

particular) kamahi is a showy specimen tree with a rich supply of nectar for birds. Rata vines, passionvine, clematis and supplejack contribute colour and bird food to the garden.

Factors for gardeners to consider:
 ☀ although there is great variety of plant types and forms possible, beware of frost

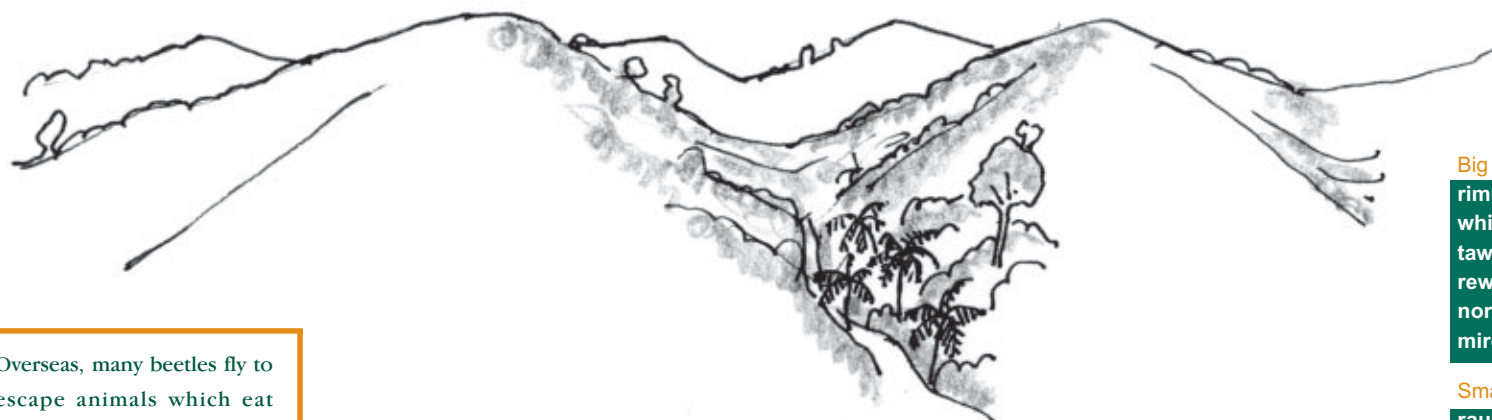
and cool nights that mean young plants in particular require good shelter. ☀ a common complaint along disturbed bush edges is the tree disease *Armillaria* which will spread to new plantings, so remove infected wood where possible.

Design interest: flowering interest in natives comes into its own up here - make

the most of flowering trees and vines.

Prunable hedges: large-leaved coprosmas

Street trees: Northern rata, kamahi, kaikomako



Overseas, many beetles fly to escape animals which eat them. Here, there were so few animals many beetles stopped flying. They grew big and heavy. When humans brought rats to NZ most of these giant

is
2.



Small Plants & Ground Covers

everlasting daisy *Helichrysum bellidioides*
Nertera depressa (damp ground)
Lagenifera pumila
turutu, NZ blueberry *Dianella nigra*
hangehange *Geniostoma rupestre* var. *ligustrifolium*
karamu *Coprosma robusta*
tutu *Coriaria arborea*
Coprosma rhamnoides
koromiko *Hebe stricta*
hunangamoho *Chionochloa conspicua* (a tussock)
Cortaderia fulvida (a small toetoe)
mikoikoi, NZ iris *Libertia ixioides*
winika *Dendrobium cunninghamii* (orchid)

Climbers

kaiku, NZ jasmine *Parsonsia heterophylla*
akatea, pink rata vine *Metrosideros diffusa*
rata vine *Metrosideros fulgens*
puawananga, bush clematis *Clematis paniculata*

Ferns

kiokio *Blechnum novae-zelandiae*
hounds tongue *Phymatosorus pustulatus*
piupiu, crown fern *Blechnum discolor*
kotate, soft tree fern *Cyathea smithii*
mamaku *Cyathea medullaris*
ponga, silver tree fern *Cyathea dealbata*
wheki *Dicksonia squarrosa*

Big trees

rimu *Dacrydium cupressinum*
white maire *Nestegis lanceolata*
tawa *Beilschmiedia tawa* - needs shelter
rewarewa *Knightia excelsa*
northern rata *Metrosideros robusta*
miro *Prumnopitys ferruginea*

Small trees

raukaua, five finger *Pseudopanax anomalus*
kanono *Coprosma grandifolia*
horoeka, lancewood *Pseudopanax crassifolius*
pate *Schefflera digitata*
rangiora *Brachyglottis repanda*
mahoe, whiteywood *Melicactus ramiflorus*
kaikomako *Pennantia corymbosa*
putaputaweta *Carpodetus serratus*
pigeonwood *Hedycarya arborea*
kamahi *Weinmannia racemosa*
heketara, tree daisy *Olearia rani*
kotukutuku, tree fuchsia *Fuchsia excorticata*
broadleaf *Griselinia littoralis*
kawakawa *Macropiper excelsum*
forest cabbage tree *Cordyline banksii*

BIRDS in YOUR GARDEN

What does your garden offer a bird?

There is a big ecological difference between gardens with numerous birds (especially starlings, sparrows and blackbirds) and gardens with a great *variety* of birds. The latter reflects the range of feeding opportunities the gardens offer, as well as safe roosting and nesting places.

Most of our garden birds are ones which have recently immigrated from countries already full of predators (so the birds have learnt defensive behaviour). This includes 'natives' like fantails and tits that came from Australia long before humans, but recently enough to still have Australian traits.

Our endemic birds don't have those survival skills ingrained: they can't share gardens with cats, dogs, rats and even magpies except on brief feeding visits. So you could reduce the number of bird-killers for a start.

Most birds have a preferred diet (and a way of seeking it) although most show a burst of interest in protein around breeding time. They might primarily be **insect eaters** hawking on the wing (fantails), feeding in ground litter (blackbirds, thrushes, tits), feeding from inside tree canopies (riroriro, whiteheads) or from the outer crown of trees and bushes (silver-eyes, starlings).

Nectar eaters, like tui, bellbird and silver-eyes, will seek out whatever

flowers are available throughout the year, but they eat fruits also, and tui show a preference for native fruits (especially podocarps) over exotic species.

The main **fruit and foliage eaters** (NZ pigeons, starlings, silver-eyes) are useful for distributing plants around, especially the pigeon which can swallow the really big fruits - but it works both ways. These birds also transport your garden species fruits back into the bush where we don't necessarily want them.

Finches, larks, sparrows feed mostly on grass seeds and small insects in the open. Your garden might also provide for water birds that feed on invertebrates, fish and foliage. Swamp and pond birds like pukeko, ducks, scaups etc. need privacy and shelter. Shags, kingfishers appreciate perches beside the water.

And don't be in too much of a rush to fell that old dead tree - it could become home for your local morepork (as long as you eradicate the possums first).

So you can see that every garden is a potential food source for birds at any time of year. What our native birds need is not food so much as habitat where they can breed and roost free from predation, nest disturbance and competition from aggressive immigrant species. Some of the shyer ones will appreciate linkages between gardens (perhaps an avenue of street trees?) so that they need not fly in the open.

🌀 BUGS !

. . . and butterflies and moths and worms . . . one of the features of the New Zealand insect fauna is that so many species are dependant upon a particular plant for part of their life cycle - perhaps *all* of it.

Having a diversity of native plants in your garden is good for this reason alone.

Over half our native bugs evolved in forest situations but with so much forest cleared their options are limited. A small corner of your garden that is allowed to stay dank, still and undisturbed is precious habitat for our native insects.



Whiteheads or popokatea are endemic to the North Island. These noisy birds move in flocks, eating insects off forest trees. They rarely fly in the open, but may be tempted into gardens along bush margins by the fruits of hangehange, putaputaweta, mahoe or rimu.



GARDENING

ARE YOU A GARDENER?

Whether you plant a shelter belt or a herbaceous border you're deciding what plants will do best in that location - that's at the heart of gardening. Add a dash of imagination and sensitivity to your surroundings to those practical decisions and you're on the way to being a garden designer as well.

Although the range of native plants never seems as broad as the selection of exotics, your native garden can be just as satisfying and interesting. Plus, it's a haven for all those insects which prefer or rely on native species for *their* welfare.

Elegant plantings of Carex provide good habitat for stream life and help absorb flood waters.



THE NEW LANDSCAPE

Where once there was 15 metres height of luxuriant growth producing its own nutrients and microclimate, and perhaps a metre of organic soil below this, now there is more likely to be 10cm of grass on a soil dependent on fertilisation.

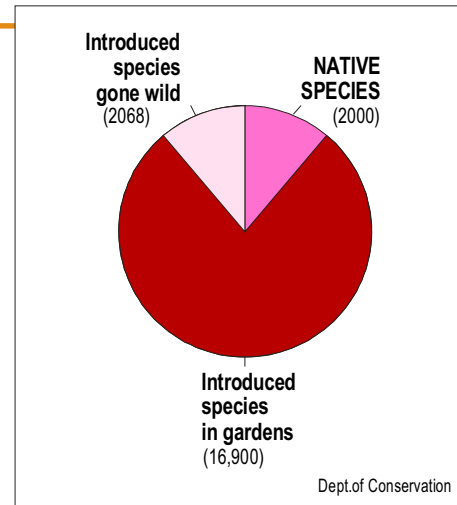
Where once the wind blew across a tightly woven, wind-resistant coastal shrubland of uniform height, now it is more likely to swirl turbulently around hedges, houses and solitary macrocarpas.

The waterways are rich in nutrient from rural run-off, most swamps are drained, their peat soils shrunken or replaced with hardfill.

So, what plants will suit these new situations? Will the natives once present survive today? Here are some tips:

☼ *near the coast, accept that you are in a shrubland zone* - the only native trees likely to thrive there are the resilient coastal trees ngaio, karaka, akeake, kohekohe or taupata which will quickly resprout if damaged by salt or wind. Concentrate on smoothing the flow of wind (mass planting of same-age plants helps). Avoid plants with large, soft, non-shiny leaves. Take particular care with young plants (mulch and water well).

☼ *once a wetland plant, always a wetland plant*, so they should survive in the 'new landscape'. But now they have a modern role to play - purifying water and providing shade for wildlife in streams. Concentrate on riparian planting and restoring the water to



Biodiversity is not simply a numbers game: increasing the number of plant species in the country does not necessarily improve biodiversity if it's at the expense of the native flora.

The diagram suggests that 'windows of opportunity' are now more likely to be filled by an imported species than by a native species. So, gardening with natives is rather like an insurance policy for our native flora.

old wetlands.

- ☼ *on fertile river terraces and open spaces* (especially well drained areas) deep-rooted trees or tiny-leaved shrubs have the best tolerance to stresses.
- ☼ *in inland areas once forested*: see what grows around the edges of forest remnants and plant those species (shrubs, vines, hardy ferns), or have a look at a regenerating scrub area and plant those species: they can withstand exposure. Plant in groups, and add 'internal' bush remnant species later when there is shelter.

PROTECTING NATURAL REMNANTS

What's important?

- ☼ fencing - to let palatable plants and seedlings grow, and to reduce trampling damage;
- ☼ sealing the bush edges from wind to create the cool, humid microclimate that many interior forest plants need. Use low stature, fast growing plants such as taupata or manuka in coastal areas; karamu or mahoe on the lowlands; poroporo, karamu or kohuhu in the foothills and in the hill country. If there are tawa in the stand, plant a taller shelter belt to minimise wind exposure to their crowns (use salt resistant species like kohekohe and kaikomako in the lowlands);
- ☼ retaining the natural water table and soil moisture patterns in the vicinity. Kahikatea is particularly vulnerable to drainage;
- ☼ controlling weed and animal pests. Rats and possums prevent fruiting and seedling growth. See p.16 for advice;
- ☼ limiting access. Make a path, but only one, especially where neighbours share a natural remnant. You can't expect great seedling growth where kids play or everyone has a track to their favourite spot;
- ☼ stock nibbling over the fence? Plant species they don't like - ngaio, rangiora and poroporo for example.

OR SIMPLY GARDENING

Choosing to garden with natives is a personal preference, but look at some of the reasons why people enjoy doing it:

- ☼ if they use species already proven & suited to the locality they'll get optimum growth and minimum maintenance
- ☼ they appreciate the character of natural landscape around them - that 'sense of place'
- ☼ their sense of garden design overrides any reluctance about planting 'common' or 'scrubby' species.
- ☼ they are aware that there are specific plant host-insect relationships which they can nurture (and have gardens full of native butterflies, cicada and moths)
- ☼ they want to re-create and improve habitat for wildlife (especially important in the wetlands)
- ☼ it gives them a buzz nurturing & protecting vulnerable and unusual native species
- ☼ it provides plants ideal for weaving and dying, for symbolic uses and for using in flower arrangements
- ☼ they know they're contributing to New Zealand's biodiversity (and preventing outsiders using windows of opportunity to take over). Did you look at the pie diagram on the previous page?

WHERE CAN YOU SOURCE NATIVE PLANTS?

One of the features of lowland Kapiti-Horowhenua is that so *little* natural vegetation remains. Without the ability to go out and collect seed we rely on neighbours and specialist plant nurseries to stock our gardens.

Try, where you can, to use plants bred from local stock. Eco-sourcing is quite valid. Although people will point out that birds carry seeds long distances, a great number of plant species have fruits eaten by *small* birds or geckos which don't have big ranges, or perhaps the seeds are wind distributed. The plants don't get widely distributed at all.

The same goes for pollination, so some plants are relatively 'incestuous' and develop local traits that often give plants tolerance to local stressful conditions.

Many gardeners experience difficulty getting the pure species of manuka and kanuka established. It is possible that the seedlings develop best with soil fungi present. Try adding *Trichoderma* (available from garden suppliers) to the planting hole, or a handful of soil taken from under established groves of manuka, and use locally sourced seedlings.

SPECIALIST NATIVE PLANT STOCKISTS

Talisman Nursery
Ringawhata Road
Otaki

Otaihanga Nurseries
117 Otaihanga Road
Paraparaumu

Gus Evans Nurseries
12 Utauta Street
Waikanae

Naturally Native
30 Gammon Mill Road
Tauranga

Matatoa Trees and Shrubs
P.O.Box 31
Engles Road
Shannon

Plantwise
Summit Road
Lower Hutt

Taupo Native Plant Nursery
P.O.Box 437
Taupo

TIPS FOR GETTING THE BEST RESULTS

Starting from scratch? On bare land your worst enemies are the drying wind, weeds that appreciate your disturbance of the soil and hungry rabbits.

Dense planting is advised, to provide cool cover for tender roots as quickly as possible and to suppress weeds. You can thin growth later.

A mulch will have the same effect, but could blow away in exposed coastal gardens unless you pin it down with netting or fibrous mat.

'Nursery' **crops** are a good idea for large planting programmes, to provide quick shelter from the wind. Start with native adventives (the first plants to establish quickly after disturbance, such as taupata in the duneland, manuka or karamu elsewhere) and a year or two later interplant with other species. With time, you can thin or remove the 'nursery' plants. A useful exotic species to use like this is tree lucerne.

EATING YOUR GARDEN

Rabbits are a major pest for gardeners especially in the sand country, and **hares** are common in inland rural areas. It pays to eradicate them *before* planting or protect new plantings. Hares will not take poison readily so the best option is to shoot them. Note that rabbits seem partial to hebe, coprosma and aciphylla.

Control methods include:

- ☛ Magtoxin tablets for fumigating burrows
- ☛ Pindone cereal rabbit pellets (an anticoagulant poison)
- ☛ Shooting is only permissible in rural areas. Remember it is an offence to carry a loaded fire arm on any vehicle. It is also an offence to discharge a fire arm so as to annoy or frighten anyone, so warn your neighbours before you shoot near dwellings.

Protect plants with:

- ☛ Oxblood, in liquid form, painted onto foliage
- ☛ Acrylic paint + egg powder repellent painted onto foliage
- ☛ Tyres, netting or plastic sleeves placed around young plants
- ☛ Exclusion fencing made of chicken netting

Possum numbers are high inland of State Highway 1.

Control methods include:

- ☛ Bait stations using Talon 20P pellets or Pindone pellets (delayed kill response, so pulse for cost effectiveness).
- ☛ Timms traps set near palatable trees. Possum favourites include coprosma, tree fuchsia, five-finger, kohekohe - and they love ripening male pine cones. Bait with fruit and cinnamon or dates.
- ☛ Live trapping. As above - but you have to dispose of the possum yourself!
- ☛ Shooting (see previous notes)

Rats and mice prevent the germination of seeds to a greater degree than most of us are aware.

Control methods include:

- ☛ Bait stations using Talon 50WB pellets (a length of drain pipe does the trick).

TAKING OVER YOUR PATCH

We are familiar with weeds like gorse and blackberry but there are other weeds of particular concern in Kapiti that gardeners might unwittingly spread thinking they are attractive fruiting or flowering garden specimens.

Boxthorn



Erect, thorny shrub with red fruit, active in duneland.

Treatment: Spray regrowth after cutting to ground level with diesel/Grazon mixture. Or rip out manually. NB discarded branches can resprout.

Boneseed



Yellow-flowering shrub with fleshy leaves and black fruit, active in

duneland.

Treatment: Roundup, Escort

Pampas



Two species of tall grass, like toetoe, but they flower late in summer and their dead leaves spiral like pencil shavings. Concentrated in disturbed sites like dunes and along riverbeds.

Treatment: Spray after flowering with Roundup, Gallant.

Old Man's Beard



A smothering clematis, on lowlands and inland areas. Leaves are arranged in fives (native clematis have leaves in threes). Fluffy seedheads.

Treatment: Roundup, Escort.

Banana Passionfruit



Vigorous climber with green/pink flower and yellow pulpy fruit. Most active in frost-free 'Nikau Belt' and riverbeds.

Treatment: Roundup. Cut back in winter/spring and spray regrowth.

Wild Ginger



(Both Kahili and Yellow Ginger) "Tropical" leaves, yellow flower spikes and dense rhizomatous root system.

Treatment: Dig up and dispose of all rhizomes and tubers.

Some garden and farm trees become problems when their original circumstances change. **Macrocarpa** seedlings will proliferate in open ground if grazing stock are removed. **Sycamore** can establish in native bush and shade out other plants. It is a particular problem around Reikorangi. **Crack willow**, once popular for streamside planting, will resprout from branches moved downstream during floods.

For a full list of pest plants in the Wellington area refer to the detailed literature provided by Wellington Regional Council. Their Pest Plant Section in Upper Hutt can be contacted on 04-5264133.

Using Herbicides

At all times be as specific as possible, targeting only the problem plants. Do not use herbicides where there is a risk of seepage into waterways.

Kapiti District does not store water. Its supply relies on rainfall maintaining river levels and on bore water. As we know, summers usually stretch demand for water beyond supply!

This guide should help you plant species adapted to the climate of your neighbourhood and its stresses, but there are other common-sense precautions to take to minimise water-useage when supplies are low:

Soak, don't sprinkle
Water the roots, not the leaves

Water late in the evening to
minimise evaporation

Add water-retaining crystals to pots

Install a rain-
water tank to
collect garden
water off your roof

Use timers, moisture meters, directional
sprinklers and hose triggers as ways of
controlling water wastage

Put your washing machine rinse
water to good use!

And after you've watered . . . mulch

Nearly one third of Kapiti's water supply is directed at gardens. Wise use and wise planting can reduce this substantially.



Two coastal gardens which have solved the water crisis by using naturally resilient seaside species: (above) prostrate ngaio and pingao, (below) a silvery combination of spinifex with the northern hibiscus and, in the centre, the milky leaves of the shore spurge Euphorbia glauca.





(left) This colourful dune garden uses local ingredients: pingao, coastal flax and ngaio; (centre) the shore spurge *Euphorbia glauca* grows best on coarse sand or fine shingle; (right) the rengarenga lily and *Tecomanthe*, a vine from the Three Kings Islands, are perfectly suited to that difficult, shady south side of coastal houses.



Clockwise: Bush-edge gardens can be show-cases for our flowering vines, in this case *Metrosideros fulgens*; *Carex flagellifera* graces a deck where the background colour is provided by kamahi seedheads; toetoe are ideal grasses for difficult spots and a great food source for finches; this bush-edge garden is designed to evoke a naturalistic grassy clearing, using silver tussock (*Poa cita*), *Chionochloa flavicans* (flowering) and juvenile putaputaweta (*Carpodetus serratus*); the large-leaved coprosmas such as karamu and taupata are sometimes treated with scorn as a garden plant because they 'grow everywhere', yet this ability to tolerate a wide range of conditions makes them ideal nursery plants or gap fillers. Try them espalliered against a sunny wall or as a bird-friendly hedge.

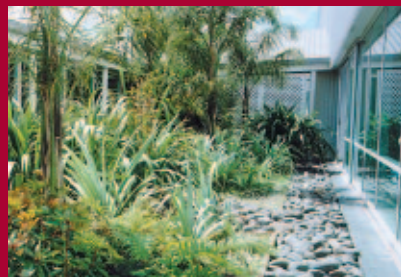




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*Boffa Miskell encourages design and restoration projects which reflect the spirit of our natural places.
We are pleased to support this guide and help Kapiti put these principles into practice.*

REFERENCES

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The Wellington Regional Plant Guide Wellington Regional Council.



Nga Manu Nature Reserve in Waikanae has native plants labelled in their natural habitat.

