Streamside planting guide

for Gisborne district 's urban area

Streamside planting guide

Gisborne's urban area has an extensive network of streams, rivers and wetlands that connect the city to the wilderness.

Before land clearance and development, urban streams would have been filled with native fish, insects, birds, and plants. Today many of these urban streams are degraded and overrun by weeds and pests.

The Gisborne District Council and the Department of Conservation want to encourage and motivate people to take pride in our streams and treat them as an important and valuable part of their property.

The 'Streamside Planting Guide' has been developed as an easy to follow step-by-step guide to native planting on urban streamsides. By following the planting guide you will help restore your stream back into its original pristine condition.

The healthiest of our urban streams are ones which have been looked after and planted with native species. Planting with native species helps filter sediment and pollutants, moderates stream flow (reducing flooding) and will keep the water temperature down. This improves water quality and promotes a healthy habitat for native fish, insects and birds.

Native planting along streamsides is not only good for the health of the streams but it also beautifies the area, provides stream-bank stability and increases your property value.

So read up on this guide, get your neighbours together and start planting!

Programme Manager, Community Relations
Gisborne/Whakatane Area Office
Department of Conversation

Photography courtesy Christchurch City Council

Step by step streamside planting guide

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Why planting your stream is a good idea

- Plants absorb and clean excess water and can limit flooding of your property.
- Plants shade the water, lowering the water temperature. This is good for fish and other aquatic creatures that live in or by the streams.
- Native plantings keep the weeds back and reduce the chance of weeds spreading through the waterway.
- Plants hold the soil together and reduce the bank erosion.
- Planted stream sides look good and can improve the value of your property.
- Streamside planting will encourage bird life to your property for you and future generations to enjoy.

Step 1

Getting started

- Watch your stream over different seasons to see where water levels rise to over winter and how dry it gets over summer.
- Think about what's involved in planting your streamside area. What you may need, including labour, site preparation and planting to do this.

Step 2

Seek advice

- Talk to your neighbours – let them know your plans, give them a chance to have their input.
- Identify legal boundaries to make sure you know where your land starts and finishes. In many cases land adjoining streams and rivers belongs in Council for the purpose of esplanade strips or reserves. It is important that you find this information out from Council.

Mark the stream water levels at different times of the year with a depth marker (e.g. wooden posts). This will help you decide where and what time of the year to plant.

Step 3

Prepare planting plan

- Find out the different vegetation zones for your stream area (see stream profile diagram). Consider slope, distance from stream, how damp the area is, overhead cover, how your stream flows throughout the year, and size of stream.

- Compile a list of plants (see recommended plant list) for each zone according to their tolerances. Especially note drainage, moisture and shade requirements.
- Space plants according to the zone they belong in, and the size they grow to. You will need approximately one plant per square metre although small rushes, sedges and ferns can be planted up to three per square metre.
- Tussocks and reeds may be placed near the edge of the water with shrubs and small trees located on the bank above these.

Your local stream sustains the life of many plants, birds, insects and animals. For humans it is a place to relax and enjoy. Your stream is an integral part of a network of green and watery places connecting people and places, coasts with city and homes with the wilderness.

Step 4

Where to get your plants

- Select a nursery specialising in East Coast sourced native plants.
  Eco-sourced (locally found) plants are best suited to local conditions and more likely to survive. Using these plants helps preserve plant genes specific to this region.
- Order plants well in advance.
- If plants are not being planted immediately, make sure the containers are watered every day.

Step 5

Where to plant

- Plant species that tolerate wetness down to the water's edge during the summer. Other species should be planted during autumn (hardy plants) or spring (frost tender plants).
- Some ground cover plants, slow growing, and/or frost sensitive species such as ferns and tree ferns, kawakawa etc. should be planted after some initial cover has become established and any dense grass has been managed – this usually occurs 2-3 years after the first plantings.

Why is planting native species best?

Native plants belong here and they are adapted to our climate, and need less care to survive. Some birds eat the berries, seeds and nectars of these native plants and it is a major component of their diet.

native garden nursery

Step 6

Prepare site for planting

- Prepare the site well before you plant. Remove invasive weeds such as Convolvulus, Ivy, Periwinkle, Wandering willy, Aluminium plant, Pampas grass, female Grey willow, Sycamore, Yellow flag iris and exotic Sward grasses. Some overhead cover may be kept temporarily to help new plants establish.
- Take into account weeds outside your planting area that may spread; such as Pampas grass.
- Clear all vegetation for about half a metre around each planting position, but retain the topsoil.
- If the ground is heavily compacted rip or fork up to half a metre depth.

Step 7

Planting

- Set out plants in their correct zones, remembering to space plants according to how large they will grow (see stream profile diagram and plant dimension information, pages 8 and 9).
- Ensure the plants have been well soaked with water and that they do not sit in the sun for a long time before planting.
- Dig a hole that is deeper and wider than the container. Never cram roots into a hole too small for them.
- Remove plant from container and prune off any entangled roots. Set plant into a bed of soft, well-worked soil and repack crumbled soil around the root mass tightly to prevent air gaps.
- On wet sites, plant woody species in a shallower hole so the top of the root mass and soil is at ground level. In permanently wet conditions slightly mounded above the ground is fine.
- On dry, steep sites set the plant into a deep hole so that after repacking of soil there is a hollow left in the ground around the stem to catch the rain. Give the plants and the surrounding dry ground a good watering after planting.
- Stake plants so you can easily find them again!

Step 8

Get plants growing

- If top soil has been stripped away, apply slow-release fertiliser and spread short-term fertiliser to each plant (e.g. super-phosphate) onto the ground after planting and before mulching.
- It is best to fertilise in the second year after planting, as plant roots are not developed enough to utilise fertiliser prior to this.

Some sunlight is okay

On urban streams, full canopy closure has the possibility of taking the stream out of view and removing a large part of its amenity value.

Full shade is more important on small streams than larger streams. Small streams less than a metre wide can be effectively shaded by shrubs less than 3 metres high.

Streams more than about a metre wide don't need to be completely shaded, 70% shade is enough for most streams to achieve the benefits of cool water and low weed growth.

High water temperatures encourage algae and other nuisance plants to grow. These nuisance plants then decrease the levels of dissolved oxygen in the water which makes the stream unsuitable for native aquatic organisms.

Step 9

Keep plants alive

- Make regular checks on the health of plants for several years following planting.
- Replace any plants that have died.
- Plants on dry banks will thrive if watered regularly in summer.
- Remove weeds.
- On dry sites mulch with bark chips (up to 10cm deep), newspaper, woollen mats, or other degradable materials.
- Do not mulch on wet sites or anywhere near the water flow, as mulch will reduce aeration to woody plant roots. Mulch near the water flow is likely to be washed away and may block the stream.

Strike Photography

- Control new weeds before they become established.
- Nearer the water, ongoing weed control is needed until the area maintains itself, or until the plants have overtopped the wild grasses.

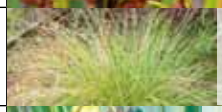
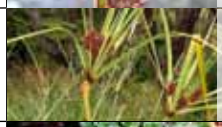
Weed control is essential

Once plants are in the ground, weeds need to be controlled for at least two years. Not controlling weeds after planting, is a major cause of native plant death in re-vegetation projects.

Plant Selection Guide

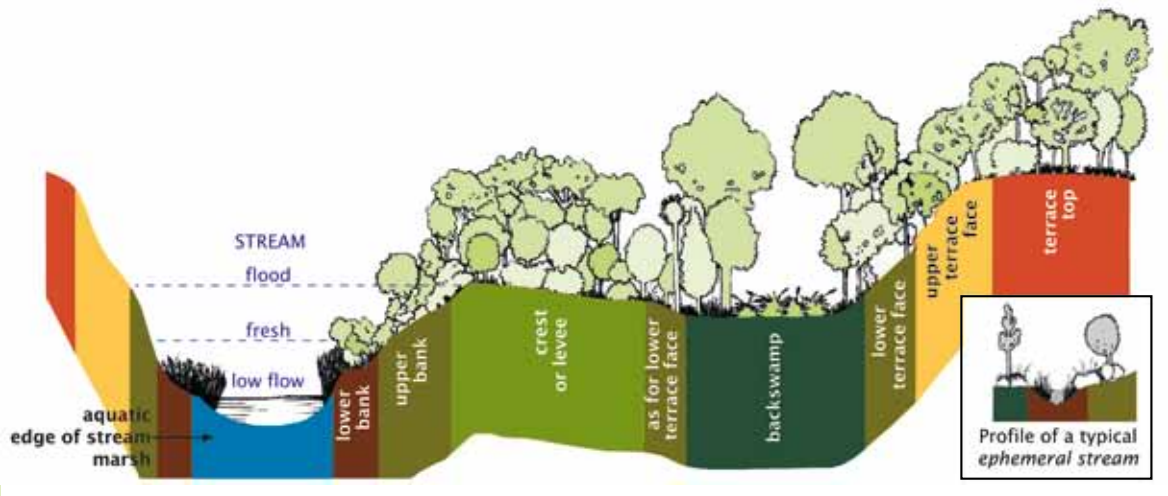
Key to plant tolerances

● = very well suited ◗ = tolerant of some ❍ = not suited

Species		Tolerances												
		Frost	Sun	Shade	Wet	Dry	Wind	Lower bank	Upper bank	Crest or levee	Backswamp	Lower t/f	Upper T/F	Terrace top
Sedges, Rushes, Ferns and Ground Covers														
lake clubrush *Schoenoplectus validus/ tabernaemontanii*	John Borkla	●	●	❍	●	❍	●				■			
pukio *Carex secta/ virgata*	 John Smith-Dodsworth	●	●	◗	●	❍	●	■			■			
harakeke *Phormium tenax*	John Smith-Dodsworth	●	●	❍	●	◗	●	■	■		■	■	■	
rushes, wiwi *Juncus edgareae/ sarophorus*	John Smith-Dodsworth	●	●	❍	●	◗	●				■			
umbrella sedge *Cyperus ustulatus*	 John Smith-Dodsworth	●	●	❍	●	◗	●	■			■			
hen and chickens fern *Asplenium bulbiferum*	Jeremy Rolfe	❍	❍	●	◗	❍	❍		■			■		
marsh clubrush *Bulboschoenus fluviatilis*	John Smith-Dodsworth	❍	●	❍	●	❍	●	■			■			
toetoe *Cortaderia fulvida*	John Smith-Dodsworth	●	●	❍	◗	●	●	■	■	■		■	■	
inkberry, turutu *Dianella nigra*	Jeremy Rolfe	◗	●	●	◗	◗	●		■	■		■	■	■
native iris *Libertia grandiflora*	Jeremy Rolfe	●	●	●	●	●	●		■	■		■	■	■

Stream profiles - *diagram*

Look at the generic STREAM PROFILE and decide which zone you want to plant (e.g. lower bank). Go to the top of the PLANT SELECTION GUIDE and find your chosen zone (e.g. lower bank). Select plants down the column. Check TOLERANCES so that you get the shade, moisture and shelter conditions just right for the plants you have selected. Every river margin is different and zones may be missing or overlapping.



Plant Selection Guide

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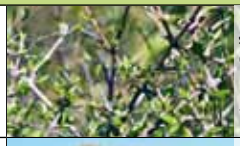
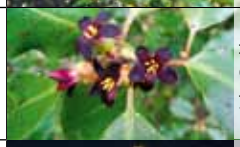
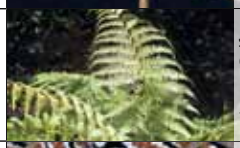
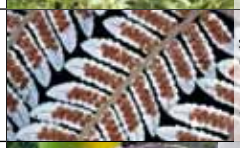
Species		Tolerances												
		Frost	Sun	Shade	Wet	Dry	Wind	Lower bank	Upper bank	Crest or levee	Backswamp	Lower t/f	Upper T/F	Terrace top
Shrubs and Trees														
mingimingi *Coprosma propinqua*	 Jeremy Rolfe	●	●	◗	●	●	●	■	■	■	■	■	■	■
cabbage tree *Cordyline australis*	John Sawyer	●	●	◗	●	●	●	■	■	■	■	■	■	■
manuka *Leptospermum scoparium*	John Sawyer	●	●	❍	●	●	●	■	■	■	■	■		■
karamu *Coprosma robusta*	Jeremy Rolfe	◗	●	●	●	●	●		■	■		■	■	■
kohuhu *Pittosporum tenuifolium*	 John Barkla	●	●	◗	●	●	●		■	■	■	■	■	■
round-leaved coprosma *Coprosma rotundifolia*	John Smith-Dodsworth	❍	◗	●	◗	❍	❍		■		■	■	■	■
wheki *Dicksonia squarrosa*	 Jeremy Rolfe	◗	◗	●	◗	❍	❍		■			■		
ponga, silver fern *Cyathea dealbata*	 Jeremy Rolfe	❍	◗	●	◗	❍	❍					■		
nikau *Rhopalostylis sapida*	Melissa Hutchinson	◗	◗	◗	◗	●	❍		■	■		■	■	
pukatea *Laurelia novae-zelandiae*	Jeremy Rolfe	◗	●	◗	●	❍	●	■	■		■			

Unwanted streamside plants

In any natural environment, invasive pest species are a major problem and can hinder the development of streamside planting.

Around Gisborne city streams, you may recognise the pest species Pampas grass. Its windborne seed allows it to easily spread far and wide. Pampas grass invades natural areas suppressing native plants. It also can provide a habitat for animal pests like possums and rats as well as creating a fire risk.

Other invasive streamside pests species include Old Man's Beard, German Ivy, Blackberry and Blue Morning Glory. Like Pampas, these pests can smother and kill native plant species and can easily establish themselves into the streamside environment.

Pest Plants

Pampas

Old Man's Beard

German Ivy

Blackberry

Blue Morning Glory

Flood risks

Plants that impede the flow of water during high rainfall have the potential to cause a flood risk.

Planting within the water flow area of the stream should be avoided as this can choke and reduce the water holding capacity of the stream. Gisborne District Council encourages planting native species (listed on pages 8 and 9) above the flow line of the stream.

If you are unsure where this flow line is, check with the Gisborne District Council or Department of Conservation before any planting takes place.

Key differences between Pampas and Toetoe

Pampas leaves have a prominent midrib and Toetoe leaves have a number of prominent lateral ribs as well as a midrib. Pampas leaves snap readily when given a firm tug while toetoe will not break.

Dead Pampas leaves hang down and form spirals. Dead leaves around mature plants resemble wood shavings. Toetoe leaves droop but do not form spirals.

Toetoe leaf sheaths, at the base of the flowering stems have a white waxy surface. Pampas leaf sheaths do not have this white waxy surface.

Pampas flower heads are erect, dense and range in colour from white to purple. Toetoe flower heads are white, feathery arching plumes.

Cortaderia jubata (Purple Pampas) begins flowering in late January. Cortaderia selloana (White Pampas) begins flowering in early March. Toetoe flowers from October to January.

Weed control

Before controlling Pampas check first to identify that Pampas is not the native Toetoe. Small Pampas plants can be grubbed or hand pulled but make sure that gloves are worn as serrated edges of the plants are very sharp. Larger plants can be removed with a digger or sprayed using a suitable herbicide near water such as glyphosate plus a penetrant. Ensure herbicides are used in accordance with manufacturers instructions.

For control of creeper plants, either spray with a suitable herbicide such as glyphosate plus a penetrant, slash, chip or remove by hand. Vines that have been cut can be stump painted with a suitable herbicide. Where ground cover weeds have been chipped, cut or removed by hand follow up spraying will be required to control any regrowth that may appear later. Where herbicides are used always read and follow manufacturers instructions.

Green garden waste

Dumping garden waste on a stream bank near the waters edge is a big no-no.

Garden waste placed in a position where it can easily be taken away by the next high water, can really harm the streamside enhancement.

Garden waste in the streams will:

- Reduce the water quality and clarity.
- Encourage the spread of nasty pest species.
- Block the flow of water and cause flooding. hazards in small streams.
- Eventually end up on our city beaches.

The best method of disposing of green waste is to get green waste recyclers to pick it up. Alternatively, hire a wood chipper and use the chips as mulch or as compost for your garden.

Things to remember…

DON'T

- let weeds and pest species ruin your hard work
- plant species which may impede the flow of water
- dump green waste in areas where it can easily enter a waterway.

Plants and planting advice
Contact Native Garden Nursery on 06 868 4483, Main Road, Makaraka

Green waste pick up
Contact Fill A Fadge on 06 868 7907 or 021 233 6943

Information
Contact the Gisborne District Council on 0800 653 800, 06 867 2049 or visit the website www.gdc.govt.nz or, the Department of Conservation on 06 869 0460 or visit the website www.doc.govt.nz

Toetoe *(Cortaderia fulvida)*

GISBORNE DISTRICT COUNCIL

native garden nursery

FILL A FADGE

Department of Conservation
Te Papa Atawhai

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