

Getting riparian planting right in Northland

Your step-by-step guide for successful riparian planting



Protecting our valuable water resource is important for dairying in New Zealand. It also benefits the community who value water for drinking and economic, recreational, aesthetic, ecological and cultural activities.

Riparian zones can be used to maintain and improve water quality. Once fenced and planted, they filter nutrients, sediment and bacteria that leave the land as runoff. Healthy riparian zones will improve the health of your waterway.

This practical 'how to' guide for riparian management covers planting and maintaining riparian zones for a sustainable and profitable dairy farm. It includes advice from industry and regional council experts.

What are riparian zones?

Riparian zones are the strips of land beside drains, streams, rivers and lakes. They include areas on-farm where the soils are wettest, such as wetlands, springs, seeps and gullies.

How to successfully manage your riparian zones

Have a plan to succeed

Having a plan is the key to getting value for your money and doing it right the first time. Your riparian plan should cover the three steps of fencing, planting and maintaining your riparian zones.

Use your farm knowledge to form your plan

1. To avoid losing plants in floods, determine how your waterway behaves in full flow. This will help you decide where to place fences and what to plant.
2. Identify areas on your farm where runoff or erosion occur most frequently and have the greatest effect on water quality. This includes seeps, springs, gullies, eroding banks, boggy areas and wet soils. These should be part of the fenced area and prioritised for planting.
3. Decide what is manageable. Fencing can be completed reasonably quickly, whereas planting and follow-up maintenance takes longer. Set a realistic timeframe and budget for planting.



TIP

Your Northland Regional Council land management advisor can answer questions you have about fencing and riparian planting during a farm visit. They can then develop fencing and riparian plans with you, tailored to your farm. It's free and it's the best way to find out what funding or support is available. Call 0800 002 004.



Set fences back from the regular high flow height. This may be quite different from the low flow height.

First things first – animals out

Livestock trample and graze plants. They also damage banks and defecate in water, adding sediment, nutrients and bacteria which reduce water quality. All waterway fencing needs to be permanent to guarantee stock exclusion.

Map your waterways and create a fencing plan. Work out fence lines and crossing points.

Choosing a fencing setback distance

The aim of the setback is to slow runoff enough to ensure as much bacteria, nutrients and sediment as possible are filtered out before they enter your waterway. A setback distance for a healthy riparian zone should vary on-farm to reflect different soil types, slopes and flow.

A wider setback is needed on steeper paddocks, longer paddocks and heavier soils, because these all generate fast flowing runoff. On flat to undulating land, relatively small zones of 3-5 m are still capable of reducing nutrients, sediment and bacteria entering waterways.

When choosing the setback distance of your fence, keep in mind what you want to achieve by planting the zones. If you want to create shade for your stock, to reduce weed growth and keep streams cool, you will need wider zones to allow more space for trees. If you want to filter nutrients, sediment and bacteria from runoff, then smaller zones (3-5 m) with shrubs and grasses will still be effective.



TIP

Attach the lower fence wire high enough to let stock graze grass underneath – it will help stop fences from shorting.

What to plant and where

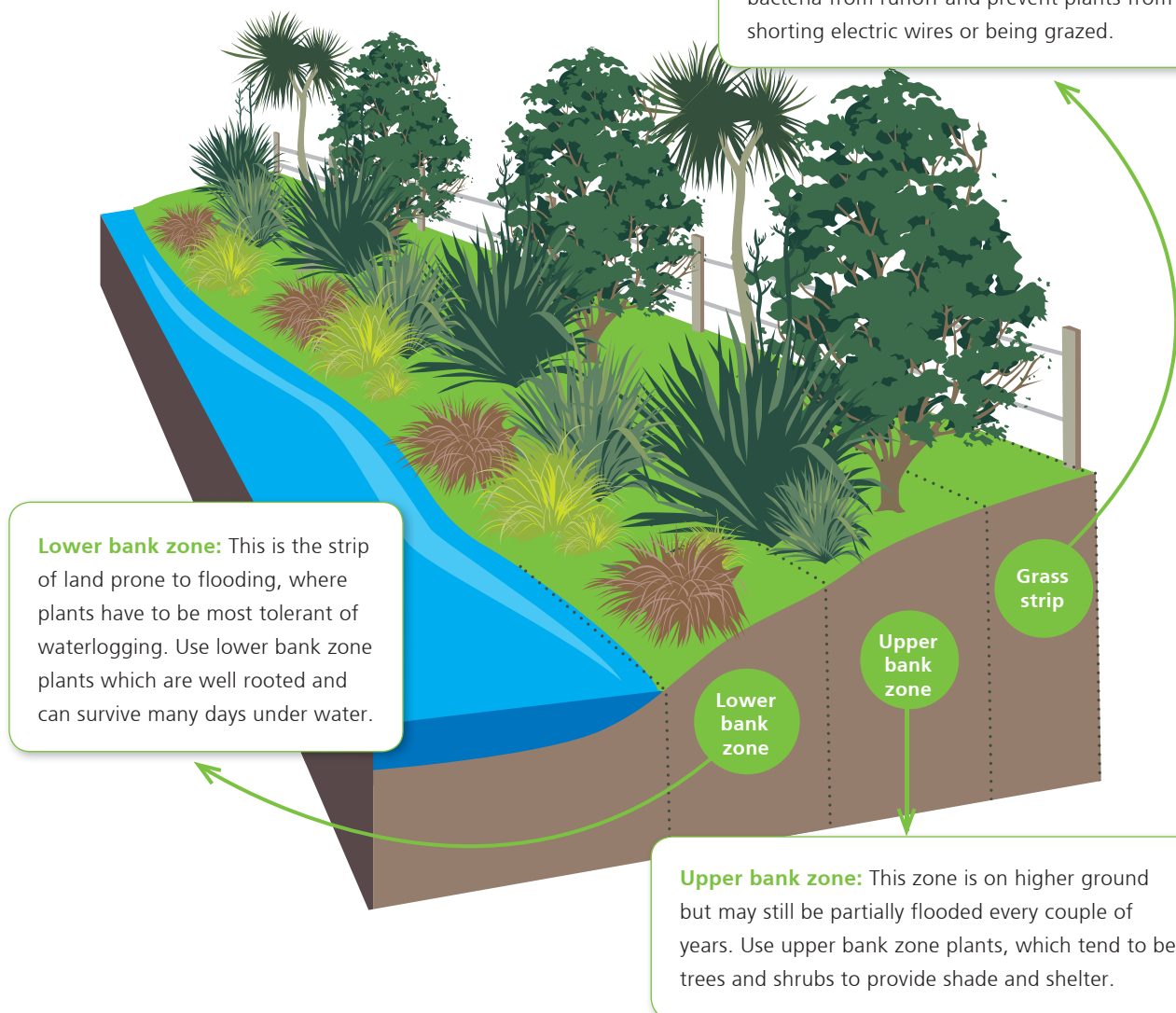
The next step is to decide what to plant, where and at what spacing.

There can be up to three zones of plant types on a healthy riparian zone, as illustrated in the picture below. Planting your upper and lower banks will improve your water quality more than using grass strips alone.

Use the Table of Riparian Plants in this guide to find out which plants are recommended for each zone in the Northland region and the correct plant spacings to ensure plants outcompete weeds.

Drains: Maintaining access to drains is important so only plant taller species on one side, preferably the north bank to provide the stream with shade in summer.

Grass strip: A one-metre wide grass strip should be left around all fences. This will help to filter out sediment, phosphorus and faecal bacteria from runoff and prevent plants from shorting electric wires or being grazed.



Holding the line: maintenance

Keeping on top of weeds and pests is crucial in the first five years for a healthy riparian zone to become established.

Combining protective and active maintenance methods is recommended as the most effective maintenance option.



Protective maintenance – this is less labour intensive but comes at a greater initial cost. Surround each plant with at least a 30-40 cm diameter of biodegradable mat that suppresses weed growth. You can use mulch, biodegradable weed mat (not plastic) or old woollen carpet.



Active maintenance – this can be labour intensive but has a lower initial cost. Each plant should be staked for easy location and brush cut, hand weeded or carefully sprayed around with a glyphosate-based herbicide, twice a year. If you choose to spray, follow product guidelines; your plants will be highly sensitive to herbicides so caution must be taken to protect against spray drift or accidental spray.



TIP

Grass strips do a great job at filtering runoff. Avoid the temptation to let livestock graze your margins, even if it is just rank grass. If you need to, brush cut your grass filter strips – don't spray them.



TIP

Kikuyu can rapidly smother plantings if left unchecked. First pull kikuyu away from plantings by hand, then spray any remaining kikuyu growth. Glyphosate is effective but take care to avoid plantings and follow product guidelines.

Common weeds to remove in Northland



Find out how to manage weeds in *Clean Streams: A guide to riparian management in Northland* available from Northland Regional Council's website nrc.govt.nz/cleanstreams or call a biosecurity officer (0800 002 004).

FAST 5 PLANTS FOR NORTHLAND



Cabbage tree



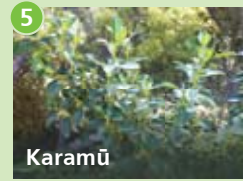
Pukio



Cutty grass



Flax



Karamū

These five go-to plants are ideal to start your planting with – they are hardy, fast-growing, can be planted straight into pasture. Ask your nursery for eco-sourced plants as they are grown from local wild seed and are best adapted to your climate and soils.

Table of Riparian Plants

Tolerates key: Full sun Wind Salt wind Frost hardy Poorly drained soil (boggy) Dry soil conditions

Benefits key: Attracts birds Attracts bees Slope stabilisation Filters runoff Shade Fish habitat

Plant name	Type	Tolerates	Benefits	Size (height x width)
Lower bank zone				
Space 1-1.5 m between plants				
Cabbage tree (tī kōuka) <i>Cordyline australis</i>	Tree			10 x 3 m
Pukio <i>Carex secta</i>	Sedge			0.75 x 1 m
Cutty grass (rautahi) <i>Carex geminata</i>	Sedge			0.75 x 1 m
Giant umbrella sedge (upokotangata) <i>Cyperus ustulatus</i>	Sedge			1.2 x 2 m
Jointed wire rush (oioi) <i>Apodasmia similis</i>	Rush			0.5 x 1 m
Upper bank zone				
Space 1.5-2 m between plants				
Flax (harakeke) <i>Phormium tenax</i>	Other			2 x 2 m
Karamū <i>Coprosma robusta</i>	Shrub/small tree			4 x 1.5 m
Black matipo (kōhūhū) <i>Pittosporum tenuifolium</i>	Small tree/tree			8 x 3 m
Kahikatea* <i>Dacrydium dacrydioides</i>	Tree			40-60 x 4 m
Kānuka <i>Kunzea ericoides</i>	Tree			8 x 3 m
Karo <i>Pittosporum crassifolium</i>	Small tree			10 x 4 m
Koromiko <i>Hebe stricta</i>	Shrub			1.8 x 1 m
Lowland ribbonwood (manatu) <i>Plagianthus regius</i>	Tree			10 x 3 m
Mahoe <i>Melicope ramiflora</i>	Tree			10 x 3 m
Mānuka <i>Leptospermum scoparium</i>	Small tree			4 x 1.5 m
Mingimingi <i>Coprosma propinqua</i>	Shrub			4 x 1.5 m
Tōtara <i>Podocarpus totara</i>	Tree			20 x 4 m

*Plant these species into existing vegetation or two to three years after initial plantings so they have shelter to grow.



TIP

Sterile hybrid willows can protect rapidly eroding banks. Call the land management advisor at Northland Regional Council (0800 002 004) for advice on approved hybrids and support.

Successful riparian planting in Northland



Ann and Stephen Kearney milk 360 cows near Kerikeri. To improve water quality they began planting manageable sections along the 5.5 km of their farm waterways in 2004.

The farm is located near the Puketi Forest and its streams feed the Kerikeri River. Ann and Stephen began fencing their riparian zones in the 1990s after helping students from Okaihau College investigate the effects of stock access on water.

When the Clean Streams Accord was introduced in 2003, Ann developed a planting plan with their land management advisor to exclude stock from all farm waterways. Ann and Stephen have shared their knowledge of planting with other farmers by hosting field days through Dairy Women's Network.

Ann and Stephen split the tasks of pre-spraying twice for kikuyu and staking locations out in the months before planting. Staking helps to find plants later in the season when they need releasing.

Ann likes to plant trees for bees, such as mānuka and kānuka. Bees help pollinate their clover which in turn increases soil fertility. Puriri and miro have also been planted to feed kererū.

Ann and Stephen agree that the plantings add real value to the farm. They now have better stock management through the retirement of wet and boggy areas and plants offer the stock shade in summer.



TOP TIPS

**Ann and Stephen
Kearney**

“Having a plan is the key to success”

Working out where your waterways are and thinking about stock movement helps ensure you fence the right spots. Your Northland Regional Council land management advisor knows what help is available and can make a riparian plan that works for your farm.

“Pests are a pain”

Pūkeko will pull up any plants smaller than knee-height. Choose larger plants as their deeper roots resist the birds pulling. Hares also like to nip buds and can kill plants. There are all sorts of plant guards and even repellent around that your land management advisor can recommend.

“Plant in manageable stages”

Make sure you only plant what you can weed and maintain the next year. Most plants will need a few years to grow large enough to manage themselves; they will need at least five years if you have kikuyu. Allow enough time in your plan to maintain all your planted areas annually.

A valuable asset for your farm

When fenced and planted, riparian zones are a valuable asset for your dairy farm. They function like a sieve, helping to filter out sediment and nutrients that leave farmland in runoff before they enter waterways. They also provide a valuable habitat for animals, birds, insects and fish.

How do healthy riparian zones improve water quality?

- Riparian zones help to reduce sediment reaching waterways, improving water clarity and the habitat for insects and fish. Less sediment means less cost for drain clearing and less risk of flooding.
- Riparian zones reduce nutrients reaching waterways, decreasing weed growth, improving biodiversity and water quality, and providing a better environment for swimming and fishing for you and your community.

On your farm, well managed riparian zones will improve stock management and protect them from getting stuck or drowning in waterways. Taller trees will provide shelter from wind, increase shade and reduce heat and wind stress.

Riparian plants stabilise banks with their roots, limiting the loss of your land through erosion.

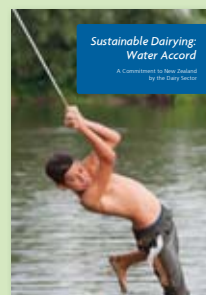
The Sustainable Dairying: Water Accord (Water Accord) was developed in 2013 by the dairy industry and is a commitment to manage the land in a way that contributes to achieving water quality desired by New Zealanders. Good riparian management is a requirement of the Water Accord.

The Water Accord requires dairy farmers to ensure:

- Stock exclusion from 90% of farm waterways* and drains** greater than 1 m in width and deeper than 30 cm and significant wetlands by 31 May 2014 and 100% by 31 May 2017.
- 50% of dairy farms with waterways* have a riparian planting plan by 31 May 2016 and all by 31 May 2020.
- Of these farms half of their riparian plan commitments have been met by 31 May 2020, with full implementation by 2030.

*A water accord waterway is a "lake, spring, river or stream (including streams that have been artificially straightened but excluding drains) that permanently contains water and any significant wetland. This does not include temporary watercourses that flow during or immediately following extreme weather events".

**A water accord drain is an artificially created channel designed to lower the water table and/or reduce surface flood risk and which has permanently flowing water but does not include any modified (e.g. straightened) natural watercourse.



Northland Regional Council has rules about what can and cannot be done near or to waterways. Activities you may need consent for include:

- Construction of bridges, culverts, fords, tracks, raceways, pipeline crossings and stopbanks (including raising the height of existing stopbanks).
- Activities disturbing the bed or bank of a river or lake, including adding or removing sediment and diverting a waterway from its existing path.
- Clearing vegetation in the riparian margin or disturbing bed material, including rocks and gravel.

Any activities in or affecting indigenous wetlands require a consent, including drainage of nearby land. Introducing or planting pest plants is prohibited.

Before undertaking any work in these areas, talk to the Northland Regional Council to check if you need a consent (0800 002 004).

