



A stockproof fence protects trees and shrubs on retired banks.



On unfenced banks, grazing pressure needs to be regulated to avoid pasture depletion and soil loss.

Whichever management option is selected for riparian margins on the farm - complete retirement, or tree planting in the absence of fences (as may be the case in some hill country situations) - bank vegetation needs to be maintained, in order to achieve the benefits that are outlined in ***Why manage streambanks?***

The three elements of maintenance are:

- Managing stock
- Looking after the trees and shrubs that have been planted
- Keeping the channel clear from obstructions

## STOCK MANAGEMENT

On retired banks (where trees or shrubs are planted) a stockproof fence will be needed; one of the types described in streambank fences. Apart from the benefits for water quality and wildlife habitat that follow stock exclusion, a good fence is an essential aid to survival of any trees or shrubs planted on a retired bank.

The fence needs to be looked after. It isn't just there to protect a few plants on the river side. It also borders a paddock, so keeping it stockproof is part of grazing management on the farm.

No matter how well a fence is maintained, occasionally stock get through, under or over it. Just one beast on the wrong side of a fence can do a lot of damage if it isn't detected for a few days. Retirement fences usually don't have gates in them, which makes it difficult to get an animal out again without cutting the wires. A good solution is to install wooden rails between two posts at the end of a strainer. They can be quickly dropped and replaced.

### On regularly grazed banks (where trees are planted)

In certain situations where trees are planted on banks that are still unfenced, they have to be protected from browsing and rubbing by stock. Keeping out stock for several months after planting is essential. Spelling the paddock guarantees a better strike rate, so less money has to

be spent blanking (re-planting) gaps where trees have been killed or damaged.

When stock are let back in, trees need to be protected until foliage is beyond their reach. Seedlings are almost impossible to protect against stock nipping the tops, short of excluding them from the streambank for the first few years after planting. Poles and specimen trees, being larger, can be protected with a range of devices from netlon or dynex sleeves, through 44-gallon drums or timber frames, to electrified wire loops.

## LOOKING AFTER TREES AND SHRUBS

### Weed control

When banks are retired and planted, at least one release spraying is necessary 6 to 12 months after planting. Extreme care is needed with knockdown herbicides such as glyphosate: use a funnel, spray wand or similar to direct spray away from seedling foliage. A residual herbicide such as oxadiazon is preferable; it is herb-specific, and so will cause minimal damage to the seedlings of woody species.

Alternatively, clear rank grass and weeds by hand or slasher, to free seedlings that are small and slow-growing, and leave as a mulch around their stems to help suppress re-growth.

Another option is to cut 0.5 m diameter mats of permeable erosion control fabric and place these around each seedling. Heavy cardboard or old carpet can serve the same purpose equally well.

A third way is to use plastic tree-guards, or off-cuts from dynex tree protectors. As well as keeping seedlings free from choking by grass, these give some shelter from wind. One dynex sleeve should provide 5 to 10 seedling-sized off-cuts. If more substantial artificial shelter is needed on windy sites, peg sheltercloth to windward on wooden stakes or iron fencing standards, but use material that lasts at least three years. When banks are unfenced, maintaining a dense pasture sward helps to keep weeds

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in check, reducing the need to spray. If weeds appear, use standard pasture weed-control sprays, but try to avoid spraying the stream or the water's edge. Remember that wetland plants aren't weeds - they trap silt from overland runoff, and extract dissolved nutrients from emerging groundwater.



Weed control is usually needed to free seedlings from rank growth.

#### **Pest control**

Protection of seedlings from goats, deer, rabbits, hares and possums is highly desirable. Shooting or poisoning will generally be needed for effective pest control. Consider using repellent chemicals to reduce damage by possums and rabbits. Smooth plastic sleeves also afford some protection for large seedlings and poles, so long as their growing tip is too high for the animals to reach from ground level.

Fenced-off riparian areas at least have the advantage that pests in them can be easily targeted. Depending on the type of vegetation and when different animals feed on it, you may be able to hit them hard once a year, instead of having to spread effort.

Remember that advice and assistance are available from the Regional Council's pest management officers, in the event of any problems that are difficult to cope with alone.



#### **Blanking (re-planting)**

Post-planting maintenance can be crucial for tree survival, but may not be practical due to other demands on time. The options are to:

- Only plant what can be cared for, or

- Plant at a higher density to allow for partial planting failure, and let nature take its course.

It is unrealistic to expect 100% success with any tree planting, but post-planting care and attention can greatly improve their chances. When good-quality seedlings are planted and protected, 70 to 80% usually survive. Where animal pests are present, they are the single largest cause of tree mortality, and much higher percentages may need to be replanted. If riparian margins aren't blanked, the stream may eventually erode through gaps where soil isn't reinforced by tree roots, and undo any benefit from the surviving trees.

In inland parts of the region, blank in August or September, because May to July may have been too early for frost-tender seedlings; or too dry on free-draining soils. In coastal districts, blank in May or June, so that seedlings have a chance to establish before drought sets in the following summer.

#### **Silviculture**

If planting trees on a riparian margin in the hope of a commercial return, pruning is advisable to avoid knotty sawlogs. Most New Zealand publications on silviculture deal specifically with radiata pine, but the techniques they recommend could be applied equally well to many fast-growing exotic timber species - the other pines, cypresses, eucalypts and acacias - with the proviso that dates of pruning will vary somewhat depending on each species' growth rate. For high-quality clearwood, some farm foresters make a practice of annually pruning small side-growth branches.

Many regional and district plans control harvest of timber near watercourses. Where trees are planted in a riparian area for timber production, they need to be clearly separated from the stream, so that they can be felled without any risk of the channel being disturbed by logging machinery, or blocked by slash. If planting indigenous timber trees, it is a good idea to retain some documentary evidence that they are planted, and not natural regrowth, so that harvest isn't precluded by vegetation clearance rules.

## **KEEPING THE CHANNEL CLEAR OF VEGETATION**

When a streambank is planted, the channel still needs to be managed so as to maintain its flood capacity. At this early stage, consider planting patterns that restore the natural flow path of floodwater. Existing trees that have fallen in may already block the flow path, and will need to be removed. Self-sown willows, blackberry or gorse may also adversely influence flow path alignment. Any debris which has lodged in the bed needs to be removed if it is likely to impede passage of floodwater. Vegetation clearance is so closely linked with flood control and erosion control in channels, that it is discussed alongside these topics in the Council's information sheet ***Maintaining channels and floodplains.***

## **WHERE TO GET MORE ADVICE**

Taranaki Regional Council provides a free advisory service for landowners wishing to maintain riparian vegetation. This service includes site visits to inspect problems, help with weed and pest control, advice about channel clearance, and up-dates of existing riparian plans.

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