



# Wallagaraugh River

Larger trees with deep root systems

Medium sized plants with good root systems, providing stream shade

Low growing plants with matted roots to bind the bank toe and help control erosion

## Top of bank

## Bank slope (mid-bank)

## Toe of bank (water's edge)

### Trees

Black Wattle *Acacia meamsii*,  
Blackwood *A. melanoxylon*,  
Rough-barked Apple *Angophora floribunda*  
Manna Gum *E. viminalis*,  
Coast Grey Box *Eucalyptus bosistoana*,

### Trees

Black Wattle *Acacia meamsii*,  
Blackwood *A. melanoxylon*,  
Rough-barked Apple *Angophora floribunda*  
Manna Gum *E. viminalis*,

### Trees

### Small trees and large shrubs

Swamp Gum *E. ovata*,  
Sweet Bursaria *B. spinosa*,  
Cherry Ballart *Exocarpos cupressiformis*,  
Sweet Pittosporum *P. undulatum*,  
Giant Honey-myrtle *Melaleuca armillaris*,  
Swamp Paperbark *M. ericifolia*,  
Tall Baeckia *Babingtonia plurifolia*,  
Port Jackson Pine *Callitris rhomboidea*,  
Southern Brush Currajong *Commersonia rossii*,  
Tree Violet *Melicytus dentatus*,  
Common Boobialla *Myoporum insulare*

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Giant Honey-myrtle *Melaleuca armillaris*,  
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Tree Violet *Melicytus dentatus*,  
Common Boobialla *Myoporum insulare*

### Small shrubs and herbs 1 – 4 metres

Pinkwood *Beyeria viscosa*,  
Hops Goodenia *G. ovata*,  
Bootlace Bush *Pimelea axiflora*,  
Prickly Currant-bush *Coprosma quadrifida*,  
Firweed Groundsel *Senecio linearifolius*,  
Snowy Daisy-bush *Olearia lirata*,  
Austral Indigo *Indigofera australis*,  
Cherry Ballart *Exocarpos cupressiformis*,  
Hazel Pomaderris *P. aspera*,  
Forest Kunzea *K. (Upright form)*,  
Kangaroo Apple *Solanum aviculare*

### Small shrubs and herbs 1 – 4 metres

Pinkwood *Beyeria viscosa*,  
Hops Goodenia *G. ovata*,  
Downy Ground-fern *Hypolepis glandulifera*,  
Bootlace Bush *Pimelea axiflora*,  
Forest Kunzea *K. (Upright form)*,  
Snowy Daisy-bush *Olearia lirata*,  
Austral Indigo *Indigofera australis*,  
Cherry Ballart *Exocarpos cupressiformis*,  
Hazel Pomaderris *P. aspera*,  
Prickly Currant-bush *Coprosma quadrifida*,  
Firweed Groundsel *Senecio linearifolius*,  
Kangaroo Apple *Solanum aviculare*

### Small shrubs and herbs 1 – 4 metres

Hops Goodenia *G. ovata*,  
Downy Ground-fern *Hypolepis glandulifera*,  
Ruddy Ground-fern *H. muelleri*,  
Firweed Groundsel *Senecio linearifolius*,  
Kangaroo Apple *Solanum aviculare*

### Grasses/reeds/sedges

Salt Club-sedge *Bolboschoenus caldwellii*,  
Tall Saw-sedge *Carex appressa*,  
Bergalia Sedge *C. longibrachiata*,  
Leafy Flat-sedge *Cyperus lucidus*,  
Tall Sword-sedge *Gahnia clarkii*,  
Black-fruited Saw-sedge *G. melanocarpa*,  
Spiny-headed Mat-rush *Lomandra longifolia* Common  
Reed *Phragmites australis*,  
Sword Tussock-grass *Poa ensiformis*,

### Grasses/reeds/sedges

Tall Saw-sedge *Carex appressa*,  
Bergalia Sedge *C. longibrachiata*,  
Leafy Flat-sedge *Cyperus lucidus*,  
Tall Sword-sedge *Gahnia clarkii*,  
Black-fruited Saw-sedge *G. melanocarpa*,  
Gold Rush *Juncus flavidus*,  
Pale Rush *J. pallidus*,  
Spiny-headed Mat-rush *Lomandra longifolia* Common  
Reed *Phragmites australis*,  
Sword Tussock-grass *Poa ensiformis*,

### Grasses/reeds/sedges

Salt Club-sedge *Bolboschoenus caldwellii*,  
Tall Saw-sedge *Carex appressa*,  
Leafy Flat-sedge *Cyperus lucidus*,  
Knobby Club-rush *Ficinia nodosa*,  
Pale Rush *J. pallidus*,  
Loose-flowered Rush *J. pauciflorus*,  
Common Reed *Phragmites australis*,  
Spiny-headed Mat-rush *Lomandra longifolia*

# East Gippsland Catchment Management Authority

## Waterway Planting Guide

Ratio of plants for revegetation	Minimum number of species		Spacings in metres
Trees:	1	2	20
Small trees and large shrubs:	2	4	5
Small shrubs and herbs 1 – 4 metres:	15	6	3
Grasses/reeds/sedges:	5	2	2

### How to go about revegetating a riparian zone on your property

#### Fencing

Excluding or restricting stock is one of the most effective and easiest ways of improving the health of your waterway and adjoining riparian zone. De-stocking an area will provide an opportunity for any existing vegetation to recover; protect newly planted species; and encourage natural regeneration. Fencing out stock will also remove the damaging effect of trampling which destroys soil structure, accelerates erosion and further prevents plant regeneration. Unfortunately, stock are also good at creating ideal conditions for the growth and spread of undesirable, and often unpalatable, weeds.

If possible, place your stock exclusion fence around 10 metres from the top of the banks of small creeks and streams and at least 20 – 30 metres from the banks of major creeks and rivers. However, each individual situation will vary according to the level erosion, degradation and existing vegetation cover. The EGCMA can provide advice regarding the appropriate location for a proposed waterway protection fence.

#### Natural Regeneration

Natural regeneration refers to the natural process by which plants replace or re-establish themselves and is a relatively easy, low cost, but effective method used to revegetate an area. Natural regeneration basically relies on nature's own recovery capacity through seed germination and resprouting, **so fencing stock out is essential**. However, there must be a reasonable quantity of mature and healthy plants on-site or within close proximity to allow the seed bank to regenerate naturally. Supplementary planting or the introduction of seed from other areas may also be required in order to achieve quick results in the case of severe bank erosion and to attain full natural plant diversity – which is important when re-establishing a 'healthy' ecosystem.

Areas dominated by native grasses, rather than competitive introduced weeds, will provide more suitable conditions for natural regeneration. It is best to minimise soil disturbance as this can lead to the invasion of introduced (exotic) species – making it difficult to achieve optimal results.

Management of some weeds will be an important consideration and spot-spraying with an appropriate herbicide can minimise pollution risks in watercourses. An EGCMA representative with experience in native vegetation management can evaluate your site and recommend the appropriate action.

**Wherever possible, leave your site for 12 months following stock removal, as you may be pleasantly surprised with the extent of natural regeneration and thus your planting requirements may be significantly reduced. This period provides a good opportunity to monitor the site and observe what's growing; however, you may need to implement a weed control program.**

#### Planting tips

The **framework** restoration/revegetation method is a very practical and effective way of re-establishing an area of native vegetation and it is most commonly used where there are no (or very few) existing native trees. This method incorporates a range of quick growing trees and shrubs in order to establish a good foliage cover as early as possible to shade out many weed species and provide a framework under which native plants can become established.

The two main **planting methods** used in revegetation programs are:

**Tubestock** – is the term for seedlings that have been raised in small nursery tubes, for transport to the planting site. Seedlings can be planted by hand or with a mechanical seedling planter at the prepared site.

It is a widely used method of revegetation with reliable and immediate results.

**Direct seeding** - involves sowing seed directly onto site by hand or machine. It is less labour intensive and a cheaper option than planting tubestock; however, it does have some limitations.

*The EGCMA can provide guidelines for the successful application of both planting methods and information regarding adequate site preparation and weed control.*

In addition to planting trees, it is vitally important to re-establish a healthy layer of **understorey vegetation**. The understorey includes herbs, grasses, rushes, sedges, shrubs and small trees and occupies the vegetation layers below the canopy of taller trees. The understorey layer can add value to a farming operation by stabilising the soil and controlling erosion; minimising the impact of rainfall; reducing runoff; insulating and protecting soil from temperature extremes; and providing a habitat for predators which control pest insects.

Understorey plants also create a wide variety and diversity of habitats for many of our wildlife species and is an essential component of a healthy ecosystem. In fact, understorey vegetation represents over 90% of the biodiversity of a healthy (normal) vegetation community and its impact on wildlife species is similar in magnitude.

### On-going management of your revegetation site

Fences need to be checked regularly and maintained because complete and ongoing exclusion of stock is an essential part of the restoration process.

Weeds compete with native vegetation for space, nutrients and sunlight and, if not controlled, they can severely impact the best attempts to re-establish vegetation along a waterway. In some situations, major infestations of weeds have been known to take over and completely smother native vegetation. Once a weed has been identified and you understand the impact that it is having (or potentially will have); there are a number of different control methods to consider. Chemical spraying and mechanical removal are the two most commonly used weed control methods; however, you may wish to discuss the options with someone who is regularly involved with waterway weed management in order to ensure optimal results.

Pest animals can pose a real threat to your restoration project. In the context of riparian revegetation, the main problem that pest animals pose to native vegetation is eating it; therefore you'll need to consider some native animals, such as wallabies and possums, as well as a range of introduced pests including deer, rabbits, goats, feral pigs and horses. The abundance and type of pest animals will no doubt vary depending on the location of your property. Some pest animals can also cause trampling, digging-up plants/soils and spreading weed seeds. As with any pest management program a number of factors need to be considered such as: identifying the animal/s responsible; determining the extent of the problem; implementing the most suitable control method; and likely cost and available resources.

**If you require further information regarding Plantings please contact:**

**East Gippsland Catchment Management Authority**

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