


# *Planting Native Trees and Shrubs on the Victorian Volcanic Plains*








Beyond Bolac Catchment Action Group (BBCAG) is a community Landcare group that was established in 2007 to undertake restoration of the Lake Bolac Catchment, including Fiery Creek which flows into Lake Bolac and Salt Creek which flows from Lake Bolac to the confluence with the Hopkins River (near Hexham).

The vision of BBCAG is for a biodiverse, productive, resilient and safe catchment supporting vibrant communities and land managers.

BBCAG aims to engage, enable and assist land managers to implement projects to improve biodiversity for a productive, healthy landscape. Projects involve landscape revegetation, wetland protection and management, erosion and salinity management, fencing, and pest plant and animal control. We do this through funding support from government agencies and philanthropic organisations.

Contact us at [beyondbolac@outlook.com](mailto:beyondbolac@outlook.com) for further information or to discuss your ideas. Please visit Beyond Bolac Catchment Action Groups website at [\*\*www.beyondbolac.org\*\*](http://www.beyondbolac.org)

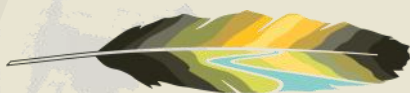




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### Acknowledgments

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**Wettenhall**  
ENVIRONMENT TRUST

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## *Introduction:*

Victoria's native grasslands and grassy woodlands were once prominent throughout the landscape, but are now highly fragmented and constitute less than five percent of their original extent (Zimmer et al. 2010). The remnants of these natural landscapes are small and scattered and compete with weeds, feral animals and human activities. The loss of native flora has deleterious effects on ecosystem function and biodiversity (Kerr & Deguise 2004).

Native trees and shrubs provide numerous benefits for the ecology of the landscape: providing habitat and food resources for native wildlife, enhancing soil health by sequestering carbon, opening up compacted soil, and improving water retention (Kavanagh et al. 2007). Native flora across the landscape provide shelter for livestock and can serve as a source of firewood or timber. They also promote biodiversity across the landscape providing shelter and foraging sites for wildlife and create ground layer habitats for native flora and fauna. Planting projects are a short term, low investment endeavour for a landholder providing long-term (generational) transformation to the ecosystem and biodiversity.

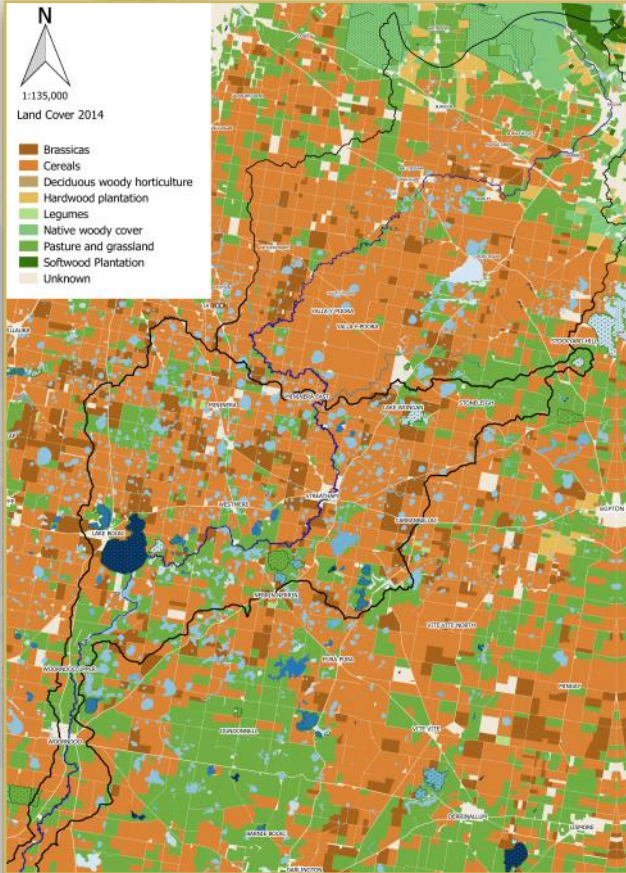
Revegetation projects can be undertaken in a variety of sizes and scopes. They can consist of landscape corridors connecting patches of native vegetation. They can be

Revegetation  
project





# Victorian Volcanic Plains



Current land cover in the Fiery Creek and Salt Creek Sub-catchments.

planted as linear shelterbelts to provide cover for livestock and property. They can be concentrated along riparian corridors, drainage points or dams. They can be scattered paddock trees or dot rocky hill slopes. Planting projects can be large scale, spread across many hectares or small pockets that fill in a corner of unused cropland. Each of these types of planting provide benefits for native animals, insects, birds, and soil.



## Planning:

Planning a revegetation project is the first step, and possibly the most important part, of the process.

Observation and evaluation of the site is important in deciding which plant species you may want to use (see tree and shrub species list). The ideal planting time is in autumn to early spring (May-August) depending on the site.

Spring planting is more suited for areas with a higher water table, while autumn planting makes use of the moisture that is introduced to the soil over winter. Establishing trees well in advance of hot dry summer periods is crucial.

Leaves of the River Red Gum  
*Eucalyptus camaldulensis*



When selecting floral species to plant it is important to include multiple species as well as structural diversity (shrubs and trees). Plant diversity provides habitat for a wide range of wildlife and creates important successional heath in an ecosystem (Swanson et al. 2010).

Order seedlings from a nursery seven to eight months prior to planting. You can also harvest seeds from plants already growing on your property. Seeds can be extracted from



## Design and Timing

woody seed pods (Tea-tree, Bottlebrush, Eucalypts, and Banksia) by storing the pods in a paper sack in a warm dry place and allowing the pods to open and release seeds. For species including Grevilleas and Wattles seeds can be collected as the pods split open on the tree. A good method for this is to cover the pod with a porous material like an old stocking to capture the seed. Plant seeds in tubestock pots with a mix of native plant potting mix. Native Australian trees do not require fertilizer added to the potting mix.

Timeline for planting procedures during spring and autumn.

Spring Planting		Autumn Planting		Action
Season	Year	Season	Year	
Spring	1	Winter	1	site planning, tree selection
Spring	1	Spring	1	1st knockdown with residual
Summer	1	Spring	1	order trees, or start from seed
Autumn	2	Autumn	2	2nd knockdown
Spring	2	Autumn	2	Rip and mound
Spring	2	Autumn	2	plant trees and guard
Autumn	3	Spring	3	knockdown (recommended)



## *Weed Control:*

**G**roundcover control is a vital step in providing your seedlings a chance to compete in the early stages of development with competitors such as pasture grasses and weeds. Competition by ground cover plants for water and nutrients can have a severe negative impact on the success of tree planting efforts. Controlling ground cover around the perimeter of planted trees is important before and during the first year or two of establishment of trees and shrubs.

Weed control can be achieved by pulling groundcover out, mulching, putting down 'weed mats' around newly planted trees and/or herbicide use. Using herbicides is most effective and time efficient particularly in larger scale projects.

Optimally weed control is first implemented seven to eight months prior to planting and again within a week or two of putting plants in the ground. The initial knockdown consists of a chemical like glyphosate and a residual herbicide to control pre-emergent plants. Herbicide can be deployed using a vehicle-mounted boom spray or handheld sprayer.

Spray lines to eliminate groundcover prior to planting.





## *Reducing Competition*

Spot spraying may be preferred if native grasses are abundant at the site. The first herbicide application not only knocks down ground cover but provides a guide for ripping and planting. A second knockdown is applied a few weeks before planting. It usually excludes a residual. In some cases a third application of herbicide can be applied using a handheld sprayer knocking down ground cover immediately around the perimeters of each tree. This is particularly recommended for slow-growing plants. In most cases, trees and shrubs provided a 1 meter perimeter without weed competition for a full growing season will give them the head start they need to grow for decades.



One of the many benefits of trees.



## Planting:

There are numerous methods for planting native vegetation in the landscape and the methodology used is based in part on the terrain in which you are planting.

In the Victorian Volcanic Plains there are several general landscape types: grasslands or pasture, woodlands, hills and rocky outcrops, riverine, gullies, and wetlands. There is certainly crossover between these habitat types but in general these areas dictate planting techniques and flora species used for regeneration.

*Ripping*—An effective methods for giving tubestock a good start in the ground involves deep ripping using a ripper pulled behind a tractor. Ripping ‘lines” 30-40 cm deep will allow the trees roots passage to spread and increase growth during the first few years of development. A two disk



Ripper with spray nozzles.



Two disk mower.

mower can follow over the rip lines. This is advantageous in wet and saline areas. If ripping on hill slopes, rip along the contours of the hill to mitigate the effects of erosion.

*Hand held planters*—Tree planters like the Hamilton Tree Planter, Pottiputki or planting spade are very easy to use,



## Methods and Techniques

simply punching a hole in the soil in which to place tubestock. This methods is useful for small areas, steep slopes or areas with remnant vegetation that preclude the use of machinery. Chipping out ground cover plants from the immediate vicinity of the hole is beneficial.

*Direct drill seeders*—These specialized pieces of machinery can be used for planting tree and shrub seeds. Direct drill is an effective method for planting large areas in a quick amount of time. Native seeds can be mixed with dry sand in the seeder bin to reduce the concentration of seed. Very small seeds will settle to the bottom of the seeder bin so frequent mixing is important. The seedlings face more challenges in the beginning of their growth period but planting using this technique has been proven effective.

Fertilizer is not recommended when planting either seed or tubestock.



A mix of nursery trees and home grown trees ready to transport to their planting location



## Protection:

**G**uarding the young trees after they have been planted can greatly increase the success of your project.

Young trees are vulnerable to foraging pressures from rabbits, hares, kangaroos, livestock, and insects. There are several options to protect your new trees.

*Fencing*—is a good long term solution to protect your trees. Fences are appropriate for largescale project or if livestock are run on the property. Once trees and shrubs are established it may be beneficial to occasionally crash graze the planted areas; knocking down invasive plants like phalaris, reducing fuel loads and providing nutrients to the soil. Fencing does not provide protection from wildlife. Individual tree guards are still recommended.

*Individual tree guards*—are a prudent option even in fenced areas. They not only protect the new plants from wildlife



A: Corflute cylinder

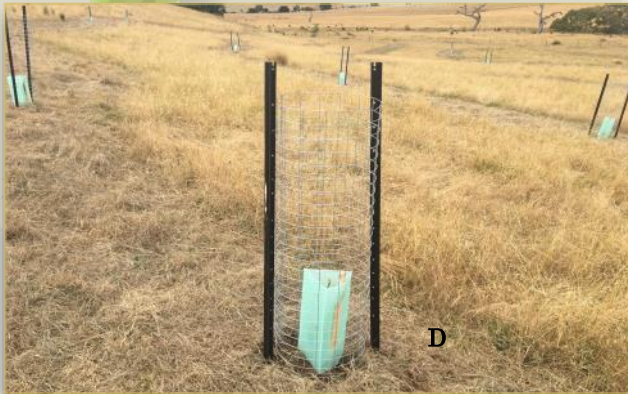
B: Milk carton

C: Plastic sleeve

D: Corflute triangle, wire mesh and pickets



# Tree Guards and Fencing



Ideal long-term tree protection.  
Note knockdown paths.

and livestock, they also create a microclimate around the tree, trapping warm air, condensing moisture and providing shelter from weather. After the trees and shrubs have established themselves (2-5 years) individual tree guards should be removed to avoid littering the landscape and the trees healthy. Milk carton tree guards will naturally decompose so there is no need to remove them from your site. Wire mesh guards provide good protection from grazing, and are essential for paddock trees.

	Corflute cylinder	Corflute triangle	Milk carton	Plastic sleeve	Wire mesh
Cost	++	++	+	+	+++
set-up	+	+	++	++	+++
takedown	++	++	+	++	+++
Reusable	++	++	+	+	+++
Sustainability	+	+	+++	+	+++



## Species List:

There is a rich diversity of regional native plant species. The following species list (modified from Bird 2018) contains a list of plants native to western Victoria. Species listed in bold are native to the Victorian Volcanic Plains. Plant species are grouped by water tolerances, relating to the terrain types they are adapted for.

	Annual minimum rainfall	Terrain suitability
Shrubs and trees	250-400 mm	Hills, stony rises, low rainfall plains grasslands
Shrubs and trees	400-550 mm	Grassy woodlands, plains grasslands
Shrubs and trees	550-700 mm	Riparian, wetlands, and heavy soil plains grasslands
Groundcover	250-700 mm	Light soil plains grasslands
Water cover	Permanent and semi-permanent	Riparian and wetlands

### Table codes

**H** = Average tree height in meters.

**Growth rate** = S (slow), M (medium), F (fast)

**Soil type** = S (sand), L (loam), C (clay)

**Tolerance** = W (wet and flood prone areas), S (high saline soils), F (fire)

**Use** = B (wind breaks), E (erosion control), S (shade), W (wood for fuel or building) **W** (coppice), I (attracts beneficial insects and wildlife).



# Native Trees and Shrubs

Botanical name	Common name	H	Grow rate	Soil type	Tolerance	Use
<i>Acacia acinacea</i>	Gold-dust Wattle	2	M	SLC		BE
<b><i>Acacia pycnantha</i></b>	<b>Golden Wattle</b>	4	F	SLC		BEIW
<i>Allocasuarina luehmannii</i>	Bull-oak	10	M	CL	WSF	BSEW
<i>Allocasuarina muelleriana</i>	Slaty she-oak	3	F	SL		B
<i>Banksia ornata</i>	Desert Banksia	3	M	SL	F	BI
<i>Callitris glaucophylla</i>	White Cypress Pine	10	M	SL	W	BW
<i>Eucalyptus largiflorens</i>	Black Box	15	S	SLC	WS	BIW
<i>Eucalyptus leucoxylon</i>	Yellow Gum	17	F	L	S	BSIW
<i>Grevillea ilicifolia</i>	Holly Grevillea	2	M	SL		
<b><i>Acacia implexa</i></b>	<b>Lightwood</b>	8	M	SLC		BSEW
<i>Acacia longifolia</i>	Sallow Wattle	5	F	SL	S	BSE
<b><i>Acacia mearnsii</i></b>	<b>Black Wattle</b>	10	F	SLC		BW
<b><i>Acacia paradoxa</i></b>	<b>Hedge Wattle</b>	3	F	SLC	F	
<b><i>Acacia retinodes</i></b>	<b>Wirilda</b>	5	F	LC	WS	BEW
<i>Allocasuarina littoralis</i>	Black She-oak	10	F	SC		
<i>Allocasuarina paludosa</i>	Scrub She-oak	3	S	SLC	W	B
<b><i>Allocasuarina verticillata</i></b>	<b>Drooping She-oak</b>	9	F	SL	S	BSEIW



# Species List:

Botanical name	Common name	H	Grow rate	Soil type	Tolerance	Use
<b>Banksia marginata</b>	<b>Silver Banksia</b>	7	M	SL		BI
<b>Bursaria spinosa</b>	<b>Sweet Bursaria</b>	4	M	SLC	WS	BEI
Callistemon paludicola	River Bottlebrush	8	M	L	W	
Callistemon rugulosus	Scarlet Bottlebrush	3	M	LC	W	BI
Casuarina cunninghamiana	River She-oak	10	F	SLC	WS	BSEW
Casuarina obesa	Swamp She-oak	10	F	SLC	WS	BSEW
<b>Eucalyptus camaldulensis</b>	<b>River Red Gum</b>	20	F	SL	WS	BSIW
Eucalyptus dives	Broad Leaved Pepermint	10	M	SLC		
Eucalyptus leucoxylon	Red-flowering Yellow Gum	6	M	L		BIW
Eucalyptus macrorhyncha	Red Stringybark	20	M	CL		BSW
<b>Eucalyptus melliodora</b>	<b>Yellow Box</b>	17	M	LC	S	BSIW
Eucalyptus microcarpa	Grey Box	15	M	LC	S	BSIW
Eucalyptus polyanthemos	Red Box	13	M	SLC	WS	BSW
<b>Eucalyptus radiata</b>	<b>Narrow-leaved Peppermint</b>	20	M	LC		
Eucalyptus rubida	Candlebark Gum	15	F	SLC		BSW
Hakea sericea	Bushy Hakea	3	M	SL		I
Leptospermum continentale	Prickly Tea-tree	4	M	SLC	W	BE



# Native Trees and Shrubs

Botanical name	Common name	H	Grow rate	Soil type	Tolerance	Use
Mela leuca decussate	Totem Poles	4	F	SLC	WS	BIW
Mela leuca ericifolia	Swamp Paperbark	4	F	LC	WS	BEI
Mela leuca lanceolata	Moonah	7	M	SLC	WS	BSI
<b>Acacia dealbata</b>	<b>Silver Wattle</b>	12	F	L		BEW
Acacia decurrens	Black Wattle	15	F	SLC		B
<b>Acacia melanoxylon</b>	<b>Blackwood</b>	10	F	LC	W	BSEW
Acacia verticillata	Prickly Moses	4	F	LC	W	BE
Banksia saxicola	Grampians Banksia	6	F	SL		I
Callistemon wimmerensis	Wimmera Bottlebrush	8	M	LC	W	BI
<b>Cassinia aculeata</b>	<b>Dogwood</b>	2	F	LC		B
Eucalyptus aromaphloia	Scent-Bark	15	M	SL		BS
Eucalyptus baxteri	Brown Stringybark	15	M	SL		BIW
Eucalyptus kitsoniana	Gippsland Mallee	5	F	LC	W	BI
Eucalyptus obliqua	Messmate Stringybark	20	M	L		BSIW
<b>Eucalyptus ovata</b>	<b>Swamp Gum</b>	15	M	LC	WS	BSIW
Eucalyptus pauciflora	Snow Gum	12	M	L	WF	BSIW
<b>Eucalyptus viminalis</b>	<b>Manna Gum</b>	25	F	L	F	BSIW



# Species List:

Botanical name	Common name	H	Grow rate	Soil type	Tolerance	Use
<i>Eucalyptus yarraensis</i>	Yarra Gum	20	F	S C		B W
<i>Exocarpos cupressiformis</i>	Cherry ballart	8	M	S L		
<i>Leptospermum lanigerum</i>	Woolly Tea-tree	4	M	S L C	W	B
<b><i>Melyctus dentata</i></b>	<b>Tree Violet</b>	2	S	S L		I
<b><i>Muehlenbeckia florulenta</i></b>	<b>Tangled Lignum</b>	2	M	L C	WS	
<i>Solanum laciniatum</i>	Kangaroo Apple	3	F	S L C		B I
<i>Acaena echinata</i>	Sheep's Burr	0.5	F	L C		
<i>Astroloma humifusum</i>	Cranberry-heath	0.5	F	L C		
<i>Austrostipa</i> sp.	Spear Grass	0.5	F	L C		
<i>Azolla filiculoides</i>	Pacific Azolla	0.5	F	S L C	W	
<i>Bossiaea prostrata</i>	Creeping Bossiaea	0.5	F	L C		
<i>Calocephalus citreus</i>	Lemon Beauty-heads	0.5	F	L C		
<i>Cycnogeton procerum</i>	Water Ribbon	0.5	F	S L C	W	
<i>Dichelachne crinita</i>	Plume Grass	0.5	F	L C		
<i>Eleocharis</i> sp.	Spike-sedges	1	F	S L C	W	
<i>Elymus scaber</i>	Common Wheat-grass	0.5	F	L C		
<i>Enchylaena tomentosa</i>	Ruby Saltbush	0.5	F	S L C		



# Native Trees and Shrubs

Botanical name	Common name	H	Grow rate	Soil type	Tolerance	Use
<i>Eryngium ovinum</i>	Blue Devil	0.5	F	L C		
<i>Glycine clandestine</i>	Twining Glycine	0.5	F	S L C		
<i>Juncus</i> sp.	Rushes	1	F	S L C	W	
<i>Leptorhynchus squamatus</i>	Scaly Buttons	0.5	F	L C		
<i>Lilaeopsis polyantha</i>	Australian Lilaeopsis	0.5	F	S L C	W	
<i>Maireana enchylaenoides</i>	Wingless Bluebush	0.5	F	L C		
<i>Microlaena stipoides</i>	Weeping Grass	0.5	F	L C		
<i>Oxalis perennans</i>	Grassland Wood-sorrel	0.5	F	S L C		
<i>Phragmites australis</i>	Common Reed	2	F	S L C	W	
<i>Pimelea humilis</i>	Rice-flower	0.5	F	S L C		
<i>Poa labillardera</i>	Common Tussock Grass	1	F	S L C	W	
<i>Ptilotus macrocephalus</i>	Feather-heads	0.5	F	L C		
<i>Rubus parvifolius</i>	Small Leaf Bramble	0.5	F	S L C		
<i>Rytidosperma</i> sp.	Wallaby Grass	0.5	F	S L C		
<i>Thelymitra pauciflora</i>	Slender Sun-orchid	0.5	F	L C		
<i>Themeda triandra</i>	Kangaroo Grass	0.5	F	L C		



## *Site Planning:*



Before (October 2008) and after (December 2020) photos of a direct seeded tree planting project near the Hopkins River.



Restoration of Challicum Creek. Top photo shortly after planting (2012). Bottom photo (2019)



# Project Worksheets

Consider your reasons for initiating a tree and shrub planting project. Make observations about the site throughout the planning process. Things to consider may include:

- Protecting and maintaining remnant vegetation
- Mitigating areas of high salinity.
- Distribution and proportion of shrubs and trees across the planting landscape
- Direction of prevailing winds
- Location of plantings to structures
- Linking planting projects to established plantings

Use the following pages to plan your projects. Below is a list of diagrams to help envision the scope and planning of each project.



wetlands



roads

rivers  
creeksexisting  
fencesaline  
areasproposed  
fenceexisting  
vegetationwash  
with damrocky  
outcrops

crop land



## Site Planning:

Date \_\_\_\_\_

Site location

Site size\_\_\_\_\_ Fencing length\_\_\_\_\_





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## Site Planning:

Date\_\_\_\_\_

Site location\_\_\_\_\_

Site size\_\_\_\_\_ Fencing length\_\_\_\_\_





# Project Worksheets

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Site location

Site size\_\_\_\_\_ Fencing length\_\_\_\_\_





# Project Worksheets

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## Site Planning:

Date\_\_\_\_\_

Site location\_\_\_\_\_

Site size\_\_\_\_\_ Fencing length\_\_\_\_\_





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## *Additional Resources*

An extensive list of local nurseries and tree planting services can be found on the Beyond Bolac Catchment Action Groups website:

**[www.beyondbolac.org](http://www.beyondbolac.org)**

A comprehensive guide to wild plants of Victoria and identification keys can be found at: [vicflora.rbg.vic.gov.au](http://vicflora.rbg.vic.gov.au)

Other sources:

[www.greeningaustralia.org.au](http://www.greeningaustralia.org.au)

[www.sustainablefarms.org.au](http://www.sustainablefarms.org.au)

[www.delwp.vic.gov.au](http://www.delwp.vic.gov.au)

Planting in pockets of paddocks  
while simplifying farm traffic





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*Adding diversity to  
the landscape.*

*Resilience for the  
community,*

*And promise  
towards the future.*

