

Revegetation and habitat creation guide

City of Armadale residents with Special Residential, Rural Living or Rural zoned properties (under the City of Armadale's Town Planning Scheme No. 4) that also contain or are adjacent to priority conservation value bushland, wetlands and watercourses, will be eligible to receive native seedlings and ongoing support with revegetation and habitat creation projects.

This guide, and ongoing technical support will provide advice on:

- Native plant species selection
- Planting techniques to give seedlings a greater chance of survival
- Weed management
- Feral animal management
- Creating wildlife habitat
- Erosion management
- Environmental monitoring



CREATING ECOLOGICAL LINKAGES

Over the last couple of centuries, the human caused changes to our Australian landscape from timber logging, land clearing, building of roads, houses and other infrastructure, climate change and the introduction of various flora, fauna, fungi and other organisms has significantly affected the extent, function and diversity of ecosystems in our country.

Particularly in and around urban areas, our native wildlife needs more habitat to move between areas of shelter, food forage and water access. By revegetating areas of your property, you are playing an important role in creating the homes and pathways for our precious wildlife.

REVEGETATION WITH LOCAL NATIVE SPECIES

Using local native plant species to revegetate your land is essential to ensure the continued survival of native wildlife into the future as they provide the specific habitat conditions and food sources that our wildlife requires. Our native plant species also have the advantage of being well adapted to the climate and soil conditions present in the ancient Australian landscape.

However, it is also important to consider the context of the area of land you are revegetating and to choose the native plant species that are well adapted to the specific soil types, landform, microclimate and access to water. For example, some species are best suited to planting in loamy soils along the moist edges of a watercourse, while some are better adapted to dry, deep, sandy soils, and others will thrive on shallow soils over rocky outcrops.



Appendix 2 outlines some common species that will be provided to landowners eligible to participate in the Habitat Links program.

BASIC PRINCIPLES OF REVEGETATION WITH NATIVE PLANT SPECIES

- **Plan ahead**, if you are ordering your own seedlings, place your orders well in advance to ensure the species you want are available. In general, for areas away from standing water or watercourses, plan to plant during the second half of winter, to ensure adequate soil moisture. Near water, you can plant later during Spring months.
- **Monitor your progress**. Take photos and note the landscape and vegetation conditions before you start. Revisit the same site and take photos each year showing the same area. This will give you an idea of your progress later down the track.
- **Start managing weeds and feral animals well before you plant**. Take out woody tree weeds and perennial grasses and shrubs during the Spring and Summer months before Winter planting. If you have feral animals such as rabbits and foxes, it is recommended that you consider a control program, generally this will work best if you get your neighbors on board as well. Additional information and support in the development of a feral animal and/or weed control program can be provided for those eligible to participate in the Habitat links program.
- **Stage your works** by undertaking weed management and planting in small manageable areas and only moving to a new area once management of current site is minimal.
- **Start from the highest point** of your site, or the most up-stream point along a watercourse and work down-hill/stream. This will reduce the pressure from weeds moving down with wind and water movement into your site.
- **Minimise soil disturbance**. Maintaining good soil structure will help seedlings thrive and reduce weed seed germination. NOTE: if soils are heavily compacted, you may have to consider ripping or another method to loosen soil.
- If you can, **start in the best condition areas**. That is areas with existing native vegetation or the lowest amount of weeds.
- **Protect your work**. Livestock, feral animals such as rabbits and some of our native animals such as kangaroos can all cause damage to young seedlings. You may want to consider protecting your site with a fence or by using tree guards to protect seedlings.



SPACING YOUR SEEDLINGS

Ensuring the correct spacing of plants can make a significant difference in the long run. While the seedlings you plant are very small, keep in mind how big each plant will grow when it matures.

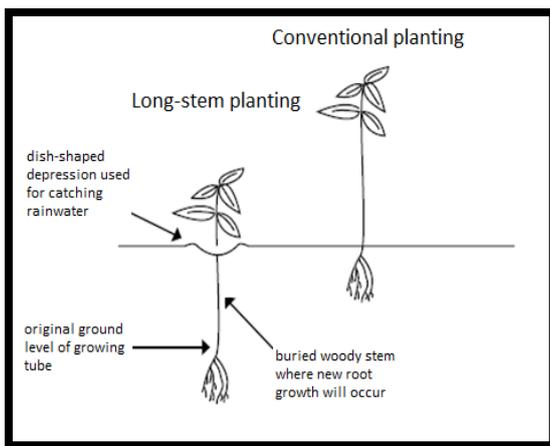
Trees planted too close together will limit each other's potential and may create too much shade for other species lower down in the understorey.

Below is a general spacing guideline

Trees	1 or 2 per 10m ²	E.g. Marri, Jarrah, Bull Banksia, Flooded Gum, She-oaks
Shrubs	2 to 3 per 10m ²	E.g. Bottlebrush, Hakeas, Prickly Moses and Tea tree
Groundcovers and creepers	1 per 2m ²	E.g. Running Postman, Native Wisteria, Coral Vine, Australian Bluebell
Herbs and small shrubs	1 or 2 per m ²	E.g. Conostylis, native grasses, Flame Peas, Kangaroo Paw, Centella
Sedges, rushes and reeds	4 to 6 per m ²	E.g. Baumea species, Juncus species, Sword sedge

SOME PRACTICAL TIPS FOR PLANTING NATIVE SEEDLINGS

- **Place all the seedlings out** on the ground first to ensure a good mix of species across the site and the correct spacing is achieved.
- If possible, **watering the seedlings** in directly after planting will increase their chance of survival.
- **You don't need to fertilise.** Native plant species are generally well adapted to the low nutrient availability of our natural soils.
- **Protect the root-ball.** Your seedlings are very fragile in their initial stages, their roots can dry out very rapidly if the root-ball is not planted deep enough or left partially exposed in the soil. Ensure you have planted your seedling deep enough to at least fully cover the root ball.



- **Long stem planting.** Seedlings with woody stems can be planted deeply so that only the top third of the plant is above the soil. New roots will grow from the stems and this will also ensure the root-ball is well protected from drying out. Branches that will be below ground can be left on the plant and buried or pruned off. Refer to the Long Stem Planting guide in your Digital Resource Kit for more information.

- **If you need to store seedlings** for a prolonged period, you can ensure they don't dry out by storing in shallow trays of water, no more than 3 cm deep. This works very well for species that are adapted to living in wetlands or along watercourses.

- **Protect your seedlings.** You may need to fence off, use tree guards or lay brush material around seedlings to protect them from being eaten or crushed by animals.

- **Control the weeds.** After planting, it is important to manage the weeds that are growing in your site for at least a few years. Focus on the weeds that are likely to smother, shade or adversely impact the seedlings as they establish.

CREATING HABITAT FOR WILDLIFE

Natural ecosystems develop over many decades to eventually become a diverse, complex system. Revegetating landscapes to improve wildlife habitat takes patience, but there are some practical ways you can increase the value of your land for wildlife quickly.



- **Food webs start off small.** It's the little critters, insects and soil organisms such as worms, bacteria and fungi, which create the food web foundation. By adding logs, branches, rocks, mulch and leaf litter to your revegetation site, you will be attracting and ensuring habitat for the small critters that birds, reptiles, frogs and small mammals will feed on.
- **Slow the water down.** If you have a watercourse, creating leaky weirs, riffles and ponds will improve water quality and create habitat for small aquatic organisms. By dispersing the flow with rock and woody debris, water is aerated and will better infiltrate the ground to replenish groundwater. However please be aware that you may need approvals to amend watercourse flow in certain areas.
- **Build your own nesting hollow.** Many of our native birds and mammals require hollows to shelter from predators and raise their young in. Unfortunately, the old trees that developed suitable hollows over hundreds of years are now increasingly rare. In recent years, development of artificial nesting hollows and habitat boxes has provided us with a range of designs that suit a variety of wildlife including black cockatoos, micro bats, phascogales, possums, rosellas and owls. These hollows and boxes can be hung in trees not old enough to have developed their own suitable hollows.

Appendix 1: Further information

The City of Armadale's [Habitat Links website](#) has a downloadable zip folder with many useful resource documents detailing various aspects of revegetation and habitat creation.

Title	Description	Publisher
Build your own nest-box	A practical guide to designing and constructing wildlife habitat boxes	Insight Ornithology www.simoncherriman.com
Bush Tucker Plants for your home garden	A list and basic information about some edible Australian native plants that can be grown in a garden.	South East Regional Centre for Urban Landcare www.sercul.org.au
Grow local plants - East Coastal	A list and information about a range of plants that are native to the eastern regions of the Swan Coastal Plain	South East Regional Centre for Urban Landcare www.sercul.org.au
Grow local plants - Scarp	A list and information about a range of plants that are native to the Darling Scarp region	South East Regional Centre for Urban Landcare www.sercul.org.au
Keeping it local - plant guide	Local native species guide for Landcare projects in the mid Swan Coastal Plain	Landcare SJ www.landcaresj.com.au
Local low flammability native species list	A list of local native species that have a low flammability rating (Note, check the flammability rating carefully, some tree species have been included with a high flammability)	Landcare SJ www.landcaresj.com.au
Long stem planting guide	A guide to propagating and planting seedlings using the long stem planting technique	The Australian Plants Society Central Coast group
Managing Phytophthora dieback	A comprehensive guide to Phytophthora dieback in bushland, and management techniques.	Dieback Working Group www.dwg.org.au
Managing streams and wetlands	A brief guide to managing streams and wetlands in south west WA.	Nature Conservation Margaret River
Plants used by Carnaby's Black Cockatoo	A list of native and non-native plants that Carnaby's Black Cockatoo feed from.	Department of Biodiversity, Conservation and Attractions
River restoration: Revegetating riparian zones in south-west WA	A comprehensive manual for watercourse restoration projects.	Water and Rivers Commission

REVEGETATION AND RESTORATION MANUALS

River Restoration Manual (Department of Water and Environmental Regulation – Western Australia)

<https://www.water.wa.gov.au/water-topics/waterways/managing-our-waterways2/river-restoration-manual>

A guide to managing and restoring wetlands in Western Australia (Department of Biodiversity, Conservation and Attractions – Western Australia)

<https://www.dpaw.wa.gov.au/management/wetlands/publications-and-links/218-a-guide-to-managing-and-restoring-wetlands-in-western-australia>

Direct shore stabilisation approaches (Department of Biodiversity, Conservation and Attractions – Western Australia)

<https://www.dpaw.wa.gov.au/images/documents/conservation-management/riverpark/Management/Best%20management%20practices%20for%20foreshore%20stabilisation%20-%20Direct%20shore%20stabilisation%20approaches.pdf>

Land for Wildlife Notes (Department of Biodiversity, Conservation and Attractions – Western Australia)

[The use of fire in small remnants](#)

[Paddock trees and wildlife](#)

[Dead wood and wildlife](#)

[Old trees and wildlife](#)

[Biodiversity and farm forestry](#)

[Requirements for native mammals](#)

[Nest Boxes for Wildlife](#)

[Stream corridors for bird movement](#)

[Creekline revegetation for wildlife](#)

Appendix 2: Species list of plants provided by Habitat Links program

Trees (greater than 7 metres)	Indigenous name	Common Name	Height (metres)	Soil	Location
<i>Allocasuarina fraseriana</i>	Kondil	Common Sheoak	15	Variable	Bushland
<i>Banksia attenuata</i>	Biara	Candle Banksia	10	Sand	Bushland
<i>Banksia littoralis</i>	Pungura	Swamp Banksia	12	Sand	Wetlands and watercourses
<i>Banksia menziesii</i>	Bulgalla	Firewood banksia	7	Sand	Bushland
<i>Callistachys lanceolata</i>	Wonnich		7	Sand	Wetlands and watercourses
<i>Casuarina obesa</i>		Swamp Sheoak	10	Sand and clay	Wetlands and watercourses
<i>Corymbia calophylla</i>	Marri		40	Variable	All
<i>Eucalyptus marginata</i>	Jarrah		40	Variable	Bushland
<i>Eucalyptus rudis</i>	Kulurda	Flooded Gum	20	Sand and loam	Wetlands and watercourses
<i>Eucalyptus wandoo</i>	Wandoo		25	Variable	Bushland
<i>Melaleuca preissiana</i>	Moonah		9	Sand	Wetlands and watercourses
<i>Melaleuca raphiophylla</i>	Yowarl	Swamp Paperbark	10	Sand and clay	Wetlands and watercourses
<i>Paraserianthes lophantha</i>		Albizia	10	Sand	Wetlands and watercourses
Large shrubs (2 - 7 metres)					
<i>Acacia dentifera</i>			3	Gravel	All
<i>Acacia urophylla</i>			3	Gravel	Wetlands and watercourses
<i>Banksia sessilis</i>	Pulgart	Parrot Bush	5	Variable	Bushland
<i>Calothamnus rupestris</i>		Mouse Ears	4	Gravel	All
<i>Hakea prostrata</i>	Janda	Harch Hakea	3	Sand and gravel	Bushland
<i>Hakea trifurcata</i>	Dulgar	Two-leaf Hakea	3	Variable	All
<i>Hakea undulata</i>		Wavy-leaved Hakea	2.5	Variable	All
<i>Hakea varia</i>		Variable-leaved Hakea	4	Loam	Wetlands and watercourses
<i>Jacksonia furcellata</i>		Grey Stinkwood	4	Sand	All
<i>Jacksonia sternbergiana</i>		Stinkwood	5	Sand	All
<i>Kunzea glabrescens</i>	Pondil	Spearwood	4	Sand and clay	Wetlands and watercourses
<i>Kunzea recurva</i>			2.5	Variable	Wetlands and watercourses
<i>Labichea lanceolata</i>		Tall Labichea	3	Variable	All

<i>Melaleuca teretifolia</i>	Banbar		5	Sand and clay	Wetlands and watercourses
<i>Melaleuca viminea</i>	Mohan		5	Sand and clay	Wetlands and watercourses
<i>Taxandria linearifolia</i>			5	Variable	Wetlands and watercourses
<i>Viminaria juncea</i>		Swishbush	4	Sand and Clay	Wetlands and watercourses
Small to medium shrubs (less than 2 m)					
<i>Acacia lateriticola</i>	Maslin		1.5	Gravel	Bushland
<i>Acacia pulchella</i>	Mindaleny	Prickly Moses	1	Gravel	Bushland
<i>Allocasuarina humilis</i>		Dwarf Sheoak	2	Sand and gravel	Bushland
<i>Astartea scoparia</i>		Swamp Teatree	2	Sand and loam	Wetlands and watercourses
<i>Beaufortia squarrosa</i>	Buno	Sand Beaufortia	2	Sand and gravel	All
<i>Calothamnus hirsutus</i>		Hawkeswood	1.5	Variable	Wetlands and watercourses
<i>Chorizema cordatum</i>		Heart-leaf Flame Pea	1.5	Variable	All
<i>Darwinia citriodora</i>		Lemon-scented Darwinia	1.5	Gravel	All
<i>Eremaea pauciflora</i>			1.5	Variable	All
<i>Gompholobium tomentosum</i>		Hairy Yellow Pea	1	Sand	Bushland
<i>Hypocalymma angustifolium</i>		White Myrtle	1.5	Sand	Wetlands and watercourses
<i>Melaleuca lateritia</i>		Robin Redbreast Bush	2	Variable	Wetlands and watercourses
<i>Melaleuca radula</i>	Moorngan	Graceful Honeymyrtle	2	Sand and gravel	All
<i>Melaleuca systema</i>			2	Sand	Bushland
<i>Melaleuca thymoides</i>			2	Sand	All
<i>Melaleuca trichophylla</i>			1	Sand and gravel	Bushland
<i>Regelia inops</i>			2	Sand	Wetlands and watercourses
Climbers / Groundcovers					
<i>Billardiera fusiformis</i>	Gumug	Australian Bluebell	climber	Variable	All
<i>Clematis pubescens</i>		Common Clematis	climber	Variable	All
<i>Kennedia coccinea</i>		Coral Vine	climber	Sand	All
<i>Kennedia prostrata</i>	Wollong	Scarlet Runner	groundcover	Sand and gravel	Bushland

Perennial Herbs					
<i>Conostylis aculeata</i>		Prickly Conostylis	0.5	Variable	All
<i>Dianella revoluta</i>	Mangard	Blueberry Lily	1.5	Variable	Bushland
<i>Lobelia anceps</i>		Angled Lobelia	1.2	Variable	Wetlands and watercourses
<i>Orthrosanthus laxus</i>		Morning Iris	0.5	Sand and gravel	Bushland
<i>Patersonia occidentalis</i>		Purple Flag	1.5	Variable	All
Sedges, rushes and wetland species					
<i>Baumea articulata</i>		Jointed Rush	2.5	Variable	In stream, max. 50cm depth
<i>Baumea juncea</i>		Bare Twigrush	1.2	Variable	Edge of water and in stream max. 10cm
<i>Baumea preissii</i>		Broad Twigrush	2	Variable	Edge of water and in stream max. 10cm
<i>Baumea rubiginosa</i>		Soft Twigrush	1.5	Variable	Edge of water and damp soil areas
<i>Centella asiatica</i>		Gotu Kola	0.4	Variable	Edge of water and damp soil areas
<i>Carex appressa</i>		Tall Sedge	2	Sand and loam	Edge of water and damp soil areas
<i>Gahnia trifida</i>		Coast saw-sedge	1.5	Sand and clay	Edge of water and damp soil areas
<i>Juncus pallidus</i>	Tangil	Pale Rush	2	Variable	Damp soil areas
<i>Juncus subsecundus</i>		Finger Rush	1	Clay and loam	Edge of water and damp soil areas
<i>Lepidosperma effusum</i>		Spreading sword-sedge	2.5	Sand and loam	Edge of water and damp soil areas
<i>Lepidosperma longitudinale</i>		Pithy Sword-sedge	2	Sand	Edge of water and in stream max. 10cm