

Revegetation Principles

Revertegration (the planting of trees, shrubs, groundcovers and other plants) is a common practice used for habitat restoration. The other major strategy is natural regeneration (refer to *Land for Wildlife Note V2 - Natural Regeneration*). The aim of habitat restoration is to restore cleared or degraded areas to the condition they were in before disturbance, using nearby remnant bushland areas as a guide to vegetation species and

structure. This Note outlines some important factors to consider before and during your revegetation project to ensure the best chance of success.

An area that has regenerated naturally is more likely to regain the species composition and structure of the original vegetation than a site that has been planted. Therefore, natural regeneration is the preferred strategy over revegetation. The decision of whether to revegetate by planting or to rely on natural regeneration to restore

habitat will be based on the present condition of the site.

Revegetation is appropriate where the site has been highly altered by clearing, farming or grazing. In such situations, there is generally little evidence of native vegetation and little possibility of natural regeneration occurring from seeds in the soil or nearby remnant native vegetation. Your Land for Wildlife Officer can work with you to help determine if revegetation is the best way forward.

Benefits of revegetation include:

- ✓ Enhanced biodiversity by re-establishing native vegetation on a degraded site which would not regenerate naturally.
- ✓ Prevention of erosion and protection of water quality in the catchment.
- ✓ Restoration of wildlife corridors and expansion or buffering of existing remnants.
- ✓ Provision of shade, protection from wind, shelter for stock and improvement of property values.
- ✓ Improving the visual amenity of a property.

Disadvantages of revegetation can be:

- ✗ High cost in both time and money.
- ✗ Ongoing management, such as watering and weed control.
- ✗ Poor planning, such as inappropriate plant species selection can limit the success of revegetation.



Riparian revegetation project along the Upper Stanley River. Photo by Ed Surman.



Site selection and planning

Look at a plan of your entire property and think strategically. Think about the purpose of your proposed planting: will it be for shade, wildlife habitat, or amenity. This will help determine the design of your plantings with regards to location, shape, composition and size. Revegetation will be most efficient and effective if you work outwards from your healthiest native vegetation remnant. Starting to plant in the middle of an open paddock is much more difficult.

Planting can be used to produce the best results in situations such as:

- Expanding and buffering existing remnants. It is important that remnants and old trees with hollows are retained as these provide important habitat for many bird and mammal species.
- Improving connectivity between remnants (corridor planting).
- Restoring riparian corridors and degraded habitats.
- Restoring areas cleared of environmental weeds.
- Preventing or mitigating soil erosion.

(Refer to *Land for Wildlife Note G2 - Wildlife Corridors* for more information on these points).

Only plant an area that you can realistically maintain. Remember that planting is only the first step as all

*People of all ages can be involved in revegetation activities.
Photo by Ed Surman.*



Tree guards around new plantings can help protect them from wind, frost and browsing by native and feral animals.

revegetation sites will need ongoing monitoring, weed management, pest animal control and perhaps watering to ensure establishment.

Consider site constraints such as the soil type, topography, slope and/or aspect, exposure to drying winds, likely occurrence of frost and floods and site access for planting and ongoing maintenance.

Think about the condition of the soil (i.e. structure, moisture and nutrients) and ground cover. In heavily disturbed sites, where earthworks have been carried out, or where the natural drainage has been altered, some site reconstruction may be needed prior to planting. In this instance you should seek expert advice.

Site photos

Once you have chosen a revegetation site, establish photo-points to monitor the changes that occur on the site over time. Place a star picket or wooden stake at strategic points throughout the revegetation site and record the direction in which photographs are taken. Aligning photographs with local landscape features can aid comparisons over time. Taking photos at regular intervals e.g. annually or even seasonally, and comparing them over time will help you detect any changes to the site and identify any improvements that can be made to your project.



Plant selection

Where possible, use seeds or plants sourced locally from plants growing in the region (i.e. local provenance) in revegetation activities. Native species have adapted to suit local conditions (soils, climate and topography), provide food and shelter for local wildlife and will not become environmental weeds. Information on the native plant species for your property can be provided by your Land for Wildlife Officer, local Landcare Officer or from the Queensland Herbarium (refer to *Land for Wildlife Note V1 - Regional Ecosystems*).

Take care to only choose species you can maintain as some plants will require more care than others and may need more time than you can provide. If planting a large site or a large number of plants, plan to plant in stages. This will reduce maintenance, enable trialling of species performance at your site and reduce losses if extreme weather conditions occur.

Wattles and other fast-growing, hardy pioneer species are recommended for degraded and exposed sites. In degraded areas, soil fertility and structure will have declined and pre-clearing vegetation communities can not be immediately re-instated. Pioneer species help to create a micro-climate, improve soil health, retain soil moisture and provide shelter to encourage the growth of slower-growing, long-lived trees. Pioneer species scattered through revegetation areas will also help to shade out exotic grasses and other weeds.

Make sure you choose appropriate species for frost prone areas. Take note of what species grow in exposed positions in the local area. Observe your chosen site for micro-climates and give preference to sites less susceptible to frost. It is also best to avoid planting, fertilising and watering very young or actively growing plants during winter.

Whether you direct seed or plant will largely depend on the site, the vegetation type, the scale of the planting, your budget and the availability of different species. Tubestock is recommended over more advanced plants and provides much better value for money. Tubestock have a lower risk of dying from transplanting shock and generally have a higher survival rate while costing less to grow, purchase, plant and maintain.

Size and shape

Shape is important, because bushland with a small perimeter or edge length relative to its area has greater resilience against threatening processes. For example, an area of bushland that is round or square will be less prone to weed invasion than a long and narrow strip, which has a greater area of bush “accessible” to the invasion of weeds (refer to *Land for Wildlife Note G1 - Healthy Ecosystems and Your Property*).



An area of revegetation that is round or square, rather than a long narrow strip, is less prone to weed invasion and more protected from wind and other disturbances.



*This five year old revegetation site at Reesville, Sunshine Coast, planted Green Wattle (*Acacia irrorata*) as a fast growing pioneer species to quickly capture the site and protect slow growing rainforest trees.
Photo by Deborah Metters.*

Plant spacing

Plant spacing should replicate the habitat you are attempting to reinstate. Some advocate dense plantings to minimise weeds and establish a micro-climate even though they may require thinning as plants grow. Wider spacings may be closer to ideal for full grown plants but may result in a slower start. They also do not allow for natural attrition that may occur and weeds will thrive with plenty of sun.

Some landholders choose to plant trees in rows using the width of their mower/slasher as a guide for ease of controlling weeds between plants. Alternatively, smaller plants (e.g. shrubs, groundcovers and grasses) can be planted between the trees. Sedges planted on waterways can be clumped closely together. Do not use wide spacings as an attempt to revegetate a large area with a small number of plants as this will provide opportunities for weeds to establish. It is better to plant strategically with smaller clumps or corridors of appropriately spaced plants.

The table below provides a rough guide to appropriate spacings for different vegetation types.

Vegetation community	Distance between trees (metres)	Canopy plants per hectare*
Rainforest (e.g. vine thicket, sub-tropical rainforest)	1-2	2500-5000
Closed forest (e.g. wet sclerophyll/eucalypt forest)	3	1500
Open forest (e.g. dry sclerophyll/eucalypt forest and Brigalow)	5-10	500-1000
Woodland	10-20	250-500
Open woodland	20-50	100-250

*Planting space for canopy species only. Other species including shrubs and groundcovers can be planted between canopy species.

Source SEQ Catchments (2009) *Living in the Landscape - the Lockyer Valley*.



A fenced revegetation site at Mount Barney.

When to plant

Planting should preferably be carried out after rain when the soil is moist. Try to avoid seasons where extremes of weather could be expected. February to April has traditionally been recognised as a good time to plant, along with spring months once the risk of frosts has passed.

What you can do

- ✓ In liaison with your Land for Wildlife Officer, prepare a Bushland Management Plan identifying revegetation sites.
- ✓ Select species that occur locally for revegetation activities. Your Land for Wildlife Officer can give you species lists.
- ✓ Plant in clumps rather than long narrow rows.
- ✓ Take prevailing climatic conditions into consideration when planning activities.
- ✓ Carry out maintenance on an ongoing basis.
- ✓ Regularly monitor revegetation sites to measure progress and identify emerging issues early.

Further reading

SEQ Catchments (2009) *Living in the Landscape - the Lockyer Valley*.

Land for Wildlife is a voluntary program that encourages and assists landholders to provide habitat for wildlife on their properties. For more information about Land for Wildlife South East Queensland, or to download *Land for Wildlife Notes* free of charge, visit www.lfwseq.org.au

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