Maroochy River Recovery
A project for our waterways' future

Rehabilitating WATERWAYS in Maroochy Shire

A guide to assist landholders with waterway rehabilitation

FOREWORD

The purpose of this guide is to assist you as a riparian (i.e. creek side) landowner and the community to undertake a successful waterway rehabilitation project. A well vegetated creek will improve water quality, biodiversity, livestock condition and has the potential to increase your property prices. The guide outlines a method based on many lessons learnt through riparian rehabilitation projects and provides information on local planning, site preparation, planting, maintenance and long-term protection. It also offers an opportunity for you to start preparing your own property rehabilitation plans. Council or catchment groups can provide support and advice to assist you during this process (see further information).

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INTRODUCTION

What are riparian lands?

Riparian land is any land that adjoins or directly influences water bodies, including:

River & Creek Banks

Wetland Edges & Floodplains

Lake Edges

Gullies & Dips

What are the issues with riparian lands?

Since European settlement many of our riparian lands and associated vegetation have been impacted resulting in:

Eroding Banks

Vegetation Loss

Poor Water Quality

Loss of Biodiversity

How can I improve the health of my riparian lands?

In recent years, hundreds of landowners in the Maroochy Shire have undertaken projects to rehabilitate their creek and river banks. A range of different activities that you can do to improve the health of your riparian lands include:

Revegetation

Fencing out Stock

Weed Control

Bank Stabilisation

PLANNING

Where do I start?

We'd suggest you start by talking with a neighbour, catchment group or council officer who has experience in creek restoration projects and decide whether or not you wish to proceed. If you choose to continue, the first step is to draw up a site plan, which identifies the location of the creek, and pinpoints erosion issues, zones to be revegetated, existing vegetation and infrastructure to be installed (e.g. fences, access gates, watering points and cattle crossings). Drawing a plan will allow you to determine the extent of your project and whether or not it will be staged.

How much work is involved?

The size of the project, funding and number of willing hands will determine how much work is involved. However, it should be noted that revegetation projects do require a strong commitment to achieve the desired outcomes and careful consideration should be given to project size.

How much will it cost?

The final cost of your project is dependent on the size of your project. Estimating a cost can be done by costing the various activities associated with planning, site preparation, planting and maintenance. Calculating the cost is an effective option for individual landowners as it will allow smaller projects to be discretely managed and successfully completed as part of a larger property plan. A contingency component (approximately 20% of final budget) should be factored in to address unexpected costs.

What funding is available?

Funding is available from a number of sources. However, allocations vary from year to year and the process can be competitive. Council offers two (2) rounds of environmental grants each year to restore, protect and conserve vegetation and waterways within priority areas of the Maroochy Shire. If interested, you should lodge an environment grant application which can be downloaded, along with guidelines at www.maroochy.qld.gov.au.

Will I need any permits?

An approval or permit from Council/or Government agency may be required to undertake parts of your project. If you are planning to damage native vegetation or disturb the bed or banks of a watercourse (e.g. during crossing construction), a Riverine Protection Permit can be downloaded at www.nrw.qld.gov.au. Processing time of the application varies but can take as long as 3 months. You may also need a permit if your project is likely to disturb culturally significant indigenous areas.

SITE PREPARATION

How do I prepare my site?

Before any planting occurs, the area to be revegetated needs to be totally fenced from stock and all weeds and grasses treated. Important information on how to treat specific weeds, e.g. camphor laurels, is available in a series of weed fact sheets on the Department of Natural Resources and Water website. Depending on the amount of vegetation that needs to be treated, the area can be slashed first and then sprayed, with decaying plant material offering an invaluable mulch layer. To address any new germinating weeds and those missed the first time, an additional spraying treatment just before planting should be undertaken if necessary.

Is my soil suitable for planting trees?

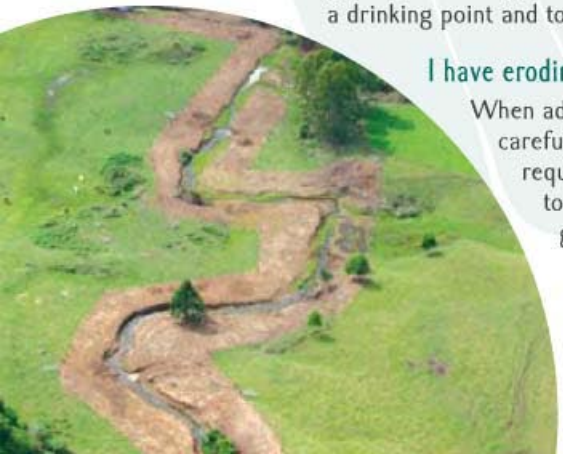
The condition of soil on your site needs to be considered. Compacted soil resulting from years of grazing may limit the performance of the trees you plant and you may need to rip or condition the soil before you start.

What type of fencing should I use?

The type of fencing installed is dependent on the type and number of stock, flooding issues and ultimately your preference. However, barbed wire fences offer long term security to revegetated areas compared to electric fences which stock can push through if not working effectively. If using barbed wire, it is strongly recommended that the top strand be plain wire to avoid the risk of injury to, or death of native wildlife. Regular inspections and maintenance of fences are required to ensure the protection of plants.

Do I require a creek crossing?

If running stock, well designed creek crossings can be installed to provide a drinking point and to protect the creek bank from grazing stock.



I have eroding banks, what should I do?

When addressing eroding banks on your site plan careful consideration and expert advice will be required. Where top soil has been lost due to erosion and/or slumping of creek banks, ground cover should be retained where possible to help prevent further soil loss.

PLANTING

What do I plant?

Plants need to be carefully selected and positioned to achieve the best outcomes. Three things to be considered are regional ecosystems, species composition and plant suppliers.

Regional Ecosystems: Regional ecosystem mapping is available from the Environment Protection Agency (see further information). Mapping incorporates the geology and pre-clearing vegetation within Queensland and provides a Guide to species selection. Plant lists for each Regional Ecosystem in the shire are available through Maroochy Council.

Species Composition: Typical species used for riparian rehabilitation projects comprise a mix of pioneer and secondary species. Pioneer species which are fast growing and tolerant of full sun protect secondary species, which are less tolerant of full sun and generally slower growing.

As a guide, 20 - 50% of the total number of plants should be pioneer species to promote rapid closure of the site. The total proportion of pioneers used should be determined by the nature of the site and in most cases involves a trade off between the required maintenance effort and project timeframes. For example, fewer pioneers may require a longer period of maintenance in the short term, but in the longer term, may increase the likelihood of a well structured and relatively self-sustaining system. If higher pioneer densities are used, closure may be achieved in a shorter period of time but ongoing site maintenance including thinning, infilling and further weed control is likely beyond five years. Importantly, pioneers must be spaced in a uniform manner rather than clumped together.

Plant Suppliers: Species indigenous to the greater Sunshine Coast, which can be supplied by a number of excellent Sunshine Coast nurseries, must be used where possible.

When do I plant?

Planting should occur when conditions will ensure minimal transplant stress. On the Sunshine Coast, March to April is an ideal time when floods and drier climatic periods are less likely. However, if plant loss due to flooding is not an issue, plantings may occur earlier (February to March). Plantings outside these periods may require intensive and regular maintenance efforts.

Where do I plant?

Three distinct planting zones generally make up any riparian revegetation project. Planting the right species in the right zones will ensure a greater planting success and better assist in achieving your project's desired water quality and biodiversity outcomes. The three zones include:

Fence Line Zone: Plants in this zone are spaced at 1 - 1.5 metres which enables plants to rapidly grow and form a protective "seal" for the framework plantings against increased sunlight, wind and weeds. This can be achieved by selecting species which are typically hardy with a shrubby form. Plants should be planted 1m inside the fence to avoid stock damage.

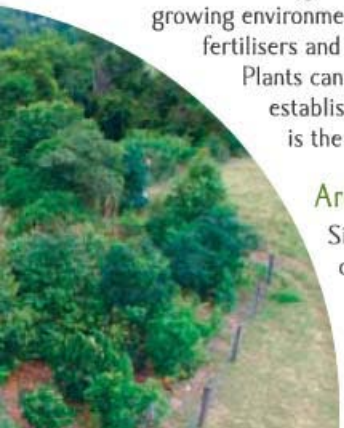
Framework Zone: The framework zone represents the majority of plants and the greatest species diversity. Protected by the fence line and creek side zones, plants within the framework zone are spaced at 1.5 - 2m. Pioneer species offer some initial shading to secondary plants in this zone.

Creek Side Zone: Plants suitable for the creek side zone are tolerant of moist conditions and provide greater stability to the bank. They also protect the framework zone and are spaced at 1 - 1.5m.

The width of each planting zone will be dependent on the desired buffer width as identified in your property plan.

How do I plant it?

Plants need to be planted correctly to ensure their survival. The hole required for planting should be 2-3cm deeper that the height of the plant container and twice as wide. A conventional shovel or mattock can be used; however, if possible it is recommended that a mechanical soil auger be used. This process will break up the soil offering a better growing environment for the plant. To assist plant survival rates, slow release fertilisers and hydration crystals can be added to the hole prior to planting. Plants can be mulched to provide soil moisture retention and decrease weed establishment. An inexpensive and practical option on the Sunshine Coast is the use of sugarcane mulch or the green waste from your local tip.



Are there other planting considerations?

Site specific issues such as frost and herbivory need to be considered. If these are issues for your site, tree guards or replacement plants may need to be factored into contingency plans. Unforseen natural events (e.g. hail, floods, fire, drought) can also affect the success of your revegetation project.

MAINTENANCE

How do I care for my plants?

Maintenance is an ESSENTIAL and LONG-TERM COMMITMENT. Regular inspections (fortnightly) during the first 12 months should be undertaken to monitor and control weeds and grasses. If weeds remain unchecked they compete for moisture and nutrients and can smother and kill young trees. As the plants grow and offer increased amounts of shade, levels of maintenance will be reduced, but should continue for at least three years after the planting. After three years it is recommended that half yearly or yearly maintenance inspections be undertaken.

What herbicides should I use?

A common herbicide used in revegetation projects is Glysophate 360 bioactive but other recommended selective herbicides may be applied. The type of herbicide and quantity used will be dependent on the application area. However, you must ensure to always read and follow the instructions and warnings on labels when handling chemicals. Weed control fact sheets are available on the NRW website.

How often should I water?

Watering requirements of plants will need to be monitored and addressed accordingly. If planted during the recommended period, then only an initial watering of 3-4 litres would be required. Water from the creek can be used for plants.

Will I need to add additional plants?

After 12 months some plants will not have survived from the initial planting and gaps will exist in the revegetated areas. To fill these gaps, new plants will need to be added to maintain the planting framework required to successfully achieve the waterways and biodiversity objectives of the project.

Can I protect my investment?

The way you manage and protect your site in future years, is a decision that only you can make. Today, with an improved understanding of what a healthy waterway is and how it can be achieved, it is a vision that all revegetation projects are protected and sustained for future generations. Ways to protect and improve your revegetation project may include:

Vegetation Protection Orders: A landowner may request that an area recently rehabilitated be afforded protection under Council's Local Law No19 (Protection of Vegetation). This is a voluntary process that can be initiated by any landowner of freehold land within the Shire, and does not involve any cost.

Covenants: A Vegetation Protection Covenant is a statutory agreement between a landowner and Maroochy Shire Council that protects native vegetation on private land. The covenant is registered on the property title and binds all future owners to the boundaries and conditions of the covenant.

Conservation Agreements: A Conservation Agreement is a voluntary but legally binding program that supports private landholders in protecting the bushland on their properties in perpetuity. Landholders who have a Conservation Agreement are eligible for an annual financial benefit in the form of a rate rebate.

Land for Wildlife: Land for wildlife is a voluntary program that encourages and assists landholders to provide habitat for wildlife on their properties. Land for Wildlife status does not alter the legal status of a property, convey the right of public access, nor represent an official wildlife sanctuary.

FURTHER INFORMATION

The following websites can provide useful information on riparian rehabilitation and waterway processes.

Useful Websites

Maroochy Shire Council	www.maroochy.qld.gov.au
Maroochy Catchment Centre	www.maroochycatchmentcentre.org.au
Mary River Catchment Coordinating Committee	www.mrccc.org.au
SEQ Catchments	www.seqcatchments.com.au
Department of Natural Resources & Water	www.nrw.qld.gov.au
River Landscapes	www.rivers.gov.au
Land for Wildlife	www.seqcatchments.com.au/projects.html
Regional Ecosystem Mapping	www.epa.qld.gov.au/REMAPS

Notes

Checklist for Draft Site Plan - Do any of these or other items need to be included in your plan?

- ☐ Property orientation
- ☐ Waterways and flow direction
- ☐ Existing vegetation
- ☐ Proposed fences / gates
- ☐ Zones to be revegetated
- ☐ Legend
- ☐ Proposed Crossings
- ☐ Erosion Issues
- ☐ Proposed off-stream watering
- ☐ Access roads
- ☐ Property boundary
- ☐ Proposed stages

Lot / plan number:		Area of property:	ha
Name of landholder:			
Name of project site:		Area of project site:	ha

Please draw your property plan showing details of on-ground works

N

- Buildings
- Existing Dam
- River Flow
- Wetlands
- Trough
- Existing Tank
- Proposed Tank
- Existing Fencing
- Proposed Piping
- Barbed Fencing
- Electric Fencing
- Existing Vegetation
- Proposed Vegetation

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Maroochy Shire Council

WATERWATCH
Maroochy River
Communities Caring for Catchments

Petrie Creek Catchment
Care Group Inc.

MARY RIVER
CATCHMENT
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