

Natural Regeneration

Potential for landscape change

Natural Regeneration: a low cost option

The loss of deep rooted vegetation is a major cause of creek bank erosion and sediment deposition in waterways of the Lockyer catchment. The re-establishment of vegetation by tree plantings has proven at times to be an arduous and expensive exercise. However if nature can do the work with only a little assistance from land managers, then there can be considerable potential for financial savings and benefits.

Promoting natural regeneration is sometimes difficult. The precise formula for promoting natural regeneration is sometimes elusive. Fortunately, there are some good examples of natural regeneration in the Lockyer catchment which demonstrate some basic principles which can be readily applied.

An indication of the financial benefit of natural regeneration is an estimate of \$20,000 for every kilometre of creek bank revegetated. A program to revegetate the creeks and waterways of South East Queensland was recently costed at \$500 million, and for the Lockyer catchment alone it could be in the order of \$40 million to \$60 million.

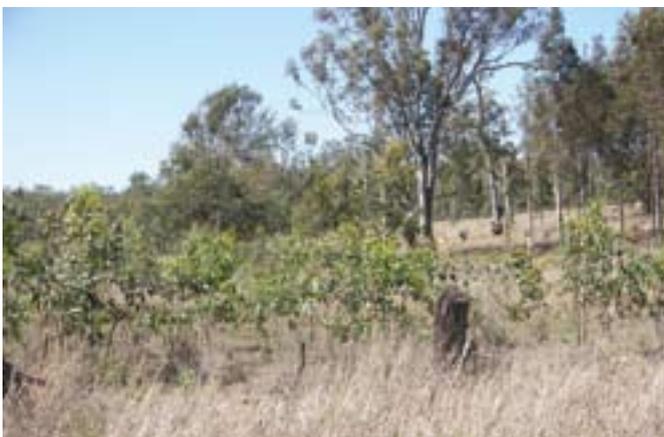
The major cost for natural regeneration strategies will often be fencing, which is commonly costed at \$2,000 to \$5,000 per kilometre.

Natural regeneration however does not always occur where it is needed and some degree of management may be required.



Regeneration occurring at a site in the Ropely area.

Natural regeneration is observed around many parts of the Lockyer.



Natural regeneration at a site east of Helidon.



On Laidley Creek young natural regeneration has been important for preventing slumping.

Fire out, stock out = trees for free

Case study 1

Property Owner:	Location:
John and Elizabeth Bishop	Tenthill Ck



Free trees: By keeping stock and fire out of the creek line, Tenthill farmer John Bishop has encouraged considerable natural regeneration of trees.

According to Tenthill Creek fig producer and former vegetable farmer, John Bishop, creeks can be revegetated in many parts of the Lockyer using low cost natural regeneration techniques. John's management strategies can be as basic as keeping the stock and fire out of the creek lines.

In the early 1980s, driven by a wish to attract more birds to the property and to provide some protection for their creek, John and Elizabeth Bishop decided that their creek frontage needed more trees.

Initially John sought the advice of the Queensland Department of Primary Industries on tree species that he could use. They planted and watered along the stretch of creek for three or four years with little success: instead they didn't burn in the area hoping for some natural regeneration to occur. Their good sense in withdrawing from planting seedlings was also driven by the fact that the enormous investment of effort into planting can be washed away in a flood.

In the first couple of years some control of lantana was necessary.

Now twenty years later, the Bishop's section of Tenthill Creek has many more mature trees. Common species present are Moreton Bay ash (*Corymbia tessellaris*), forest red gum (*Eucalyptus tereticornis*), weeping bottlebrush (*Callistemon viminalis*) and sally wattle (*Acacia salicina*).

Generally the grass will compete with seedling regeneration. But John's experience is that young seedlings given time will grow through the grass and mature. However, a grassfire would be fatal for such young seedlings.

With trees well established on the creek banks, John is now hoping for a wet winter that will allow him to make a cool burn in June or July to help control lantana and other weed species. He is very reluctant to burn in spring as these fires have a tendency to burn too hot, destroying the existing vegetation. Another management option is strictly controlled grazing.

In the broader landscape which has been completely cleared, John sees large scale plantings with trees such as spotted gum (*Corymbia citriodora ssp. variegata*) having a role, "but not for creeks and gullies and that sort of thing."

To John, there needs to be an understanding that the creeks need the protection of trees, because, "We still get episodic events, those gully rakers," that can cause such serious erosion.

Trees and grasses will not totally protect the soil, as erosion and landslips are part of the natural cycle, however the clearing of the landscape over time has significantly increased the amount of erosion occurring.

It just happens



1933 RAAF air photograph showing a bare gully indicated by the red arrow.



A photograph taken in 2007 of the same gully, which is now revegetated by means of natural regeneration.

A comparison of air photographs taken of Tenthill Creek between 1933 and 2007 shows a waxing and waning of vegetation cover that can largely be explained by changing farm practices. Most interesting is the natural regeneration that has occurred in some areas.

Each individual block in the Tenthill Creek catchment has its own history but, generally in the lower reaches of the creek, less grazing occurs now than in the past, and over that time an increase in cover by natural regeneration has occurred.

In the wider landscape, there has been a significant decline in tree cover, as more treed areas have been converted to pasture.

According to University of Southern Queensland researcher Armando Apan, between 1973 and 1997 there was a loss of 44,000 hectares of tree cover in the Lockyer catchment.



Image of the regeneration taken from the ground.

Creeks have traditionally been exposed to heavy grazing pressures as most properties (even small ones) in the past commonly had a house cow and at least a couple of calves. John Bishop reports that in the 1960s when cattle prices were good creating a paddock with fencing in the creek was the favoured management option, placing enormous pressure on creek lines. Accompanying this heavy grazing pressure were regular spring burns over successive seasons, which were sufficiently intense to kill even large, established trees in some instances. There has also been a history of clearing along creeks. This has now changed, particularly on intensive horticultural farms where the running of livestock is less common. This has contributed to the increase in natural regeneration in many creeks and waterways of the lower Lockyer Valley.

General principles for riparian management

- Protect riparian areas in good condition.
- Rehabilitate / revegetate degraded areas.
- Minimise disturbance.
- Implement a weed control program.
- Control / manage stock access in riparian areas.
- Provide off-stream watering points for livestock.
- Use fire sparingly and in seasons when cool moist conditions prevail.
- Undertake a regular monitoring program to identify any problems developing or becoming more serious.



Natural regeneration is observed around many parts of the Lockyer. Here natural regeneration of belah (*Casuarina cristata*) acacia and eucalypt is occurring on a property east of Tenthill.



Young acacia regeneration is the first species to appear along Tenthill Creek providing bank stability. Eucalypts and black tea tree (*Melaleuca bracteata*) are also beginning to appear.