6 Remnant vegetation, revegetation and farm planning

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Introduction

The values of remnant vegetation and revegetation in rural areas have been discussed in previous sections of this guide. Remnant vegetation and revegetation on a property should be seen as an asset that provides production and other benefits, and as such, should be included as a vital component of the farm plan as much as any other aspect of the property. The question is how do you best incorporate both existing remnant vegetation and revegetation into farm planning to maximise these benefits?

Incorporation of existing remnant vegetation

1 Is there any left ?

Recent research in the Box–Ironbark region of northern Victoria has indicated that despite large–scale clearing, most farms (65%) still support remnant vegetation, indeed the average area still remaining was 26ha per property, usually in one or two patches. This is significant, as it does indicate that many properties still maintain some original vegetation; however, it also indicates that the areas of remnant vegetation are not likely to be linked or connected by continuous native vegetation, either within the same property, or adjacent ones. Developing the linkages between remnants should be seen as a priority.

Figure 1a A low quality remnant

2 Quality of remnant vegetation

Habitat quality is defined by the presence of all normal aspects of a natural system, and generally, the higher the habitat quality, the higher the number of species of native flora and fauna likely to be found. For instance, the presence of mature trees indicates the likely presence of hollows for a range of arboreal nesting species, likewise standing dead trees. The presence of all age groups of trees and shrubs ensures a continual replacement of habitat, and a food source for arboreal and ground–dwelling mammals and birds. Dead wood on the ground provides protection and habitat for ground–dwelling fauna. The presence of a diversity of shrub species provides food throughout the year. Absence of weed species allows native flora to reproduce without competition from introduced species.

Figure 1b A high quality remnant

Across the catchment, there is a great range in the quality of the remnants on private land, depending on the previous and current management of the area. Recent research has indicated that in the Box–Ironbark region of northern Victoria, 50% of the remnant on private land had been impacted by stock grazing and were of low quality, while 10% of remnants were severely impacted and were of very low quality. It was estimated that approximately 20–50% of remnants were of moderate to high quality. This indicates that many

properties will have reasonable quality remnants to start with, and to incorporate into a farm plan.

3 Management of remnant vegetation

The remnants on private land remain for a variety of reasons, depending on the values placed on them by the landholders. Many areas have been left because they were considered unproductive, were not easily cleared, were seen as providing either good shelter for stock or were a good timber source. Research has identified that while most remnants on private land were valued strongly for their wildlife and aesthetic values, they were often used for grazing, firewood collection and stock shade on a relatively frequent basis. The practice of "picking–up" sticks to give properties a tidy appearance was also a frequent activity of many landholders with remnants.

One of the main strategies in farm planning should be to "enhance" the habitat quality of any remnant on the property, and by doing so conserve the biodiversity. While generalisations are difficult, there are a few points that should be followed to achieve a better quality remnant. These are:

- Reduce or exclude grazing by stock and pest animals by fencing out or control. All grazing animals selectively graze the most palatable species (especially young regenerating plants), and will modify the diversity and abundance of native plants and weeds and the structure of the vegetation. Stock particularly will also play a role in spreading weeds and causing soil fertility problems, such as compaction and crusting.

Figure 2 Fallen timber provides valuable habitat for wildlife like this Earless Dragon

- Leave fallen and dead timber on the ground or standing, and resist the temptation to "tidy–up" the sticks in an area. In addition, while it may seem attractive to collect firewood or fencing material from a remnant, this activity does have a major impact on fauna, as it removes the source of protection and shelter for many species, such as the Bush Thick–knee and many reptiles and amphibians.
- Control weeds. Most weeds compete directly with native plants for physical space and soil volume for nutrient and water. Many will "over–grow" native species and cut out their source of light. Many of the woody weeds can be controlled with persistent spot–spraying, while many of the annual weeds, such as thistles, can be controlled by manual removal. Annual grass weeds are a more difficult problem, but can be tackled by removing their flower head prior to curing and seed–set using a variety of methods. Weed control in an area will allow regeneration to occur by removal of the competition, either by seed directly scattered by plants, or from seed stored in the soil.
- Control predatory pest animals. The major pests are cats and foxes, which have had a major impact on the ground–dwelling fauna of the catchment. Control or eradication of these pests from a remnant will encourage the return of ground–dwelling fauna.

Revegetation

1 Local usage of revegetation

In recent years, there has been a lot of activity within the catchment in the revegetation of farms, which have been directed towards:

- The provision of shelter belts for stock and crop protection;
- Tree planting on hilly areas for recharge control;
- Stream and creek side plantings to stabilise erosion and erosion hazard;
- Increasing the area of an existing stand of remnant vegetation;
- Plantings specifically designed as wildlife corridors.

In many cases, plantings have provided a number of these benefits, however, thought and planning is required to achieve a multiple benefit from any revegetation. There is no reason why most

plantings on a farm cannot accommodate a number of these and other benefits.

Wildlife corridors have often been established to provide a link between two or more existing blocks or strips of remnant vegetation, where native fauna may exist as isolated populations that do not breed normally due to the lack of continuous vegetation to allow them to move. Isolation of populations may lead to a loss of genetic diversity and greater likelihood of a local population extinction.

While large areas cannot necessarily be spared from a productive paddock, there are a number of general points that can be kept in mind when designing a wildlife corridor. These are:

- The corridor is being provided to give birds and other fauna a desirable habitat in which to move from one place to another – be mindful of the target species requirements;
- Continuous vegetation is better than clumps or patches of vegetation for species movement;
- Corridors are always more effective habitat when based on existing mature trees or other native vegetation;
- The wider the corridor the better for the more effective movement of a wide range of fauna – a minimum of 30 metres is suggested;
- Corridors should not only be planted with tree species only, but a wide variety of understorey species to provide a diverse bushland for fauna.

2 History of revegetation

In the early days of revegetation in the catchment, there was little thought given to the species selection of plantings, and hence, we see many plantings of Sugar Gum (*Eucalyptus cladocalyx*), Cypress (*Cupressus* spp.), Peppercorn (*Schinus* sp.) and Radiata Pine (*Pinus radiata*) in the region. These plantings were often as windbreaks, and did perform their functions well, even up to the current day, however, none of these species are native to the region (indigenous). While these examples have generally grown well, many other species tried have failed. There is a good reason for this. Indigenous species have evolved in the locality over a long period, and are therefore well adapted to their region of distribution. While this does not mean that planting them is a guarantee for complete success, the odds are significantly higher, and failure is more likely due to poor establishment technique or poor quality plants than poor species selection.

3 Species selection

Selection of species to plant requires more attention than the simple selection of any plants of that species. Many species that are widely distributed, such as Grey Box (*E. microcarpa*), will have a variety of locally adapted populations, called provenances or ecotypes. A local provenance will always be better adapted to the district than a provenance from 250 kilometres away, and will generally grow better and live longer. The exception to this is when the site has been modified to the point where the indigenous species are unlikely to establish and grow. Examples of this are sites where rising groundwater has resulted in salinity–affected soils, sites with very high fertility due to heavy fertilisation, such as sites treated with waste water, and sites where the topsoil has been largely removed, such as mined sites and small patches in areas that have been laser graded.

You should always make sure of the origin of plant before placing in it in the ground. A change in the genetic diversity of a species can occur if plantings of an out–of–area provenance of a local plant are made, which may in time seriously affect the long–term conservation of the species.

Planting a variety of indigenous trees, shrubs and herbs will have the benefit of partially re–creating the original bushland environment that used to exist prior to clearing. This will have the obvious benefits of attracting more native fauna to the revegetated area, which in turn will enhance the return of native pest control species, such as insectivorous birds and insects. It is quite likely that other species of indigenous flora will be "returned" to the site through seed and fruit–eating fauna as well. A point worth thinking about is that most of these beneficial native species will only move a limited distance from their bushland area, so the more dispersed the plantings of indigenous species, the better the control that will be provided across an entire property.

4 Natural regeneration

There is a significant likelihood that natural regeneration of native plant species will take place in many bushland remnants when favourable conditions prevail, either from seed stored in the

soil or from recently released seed. If natural regeneration occurs within a remnant, it can save a lot of effort and revegetation costs. There are a number of factors, both natural and artificial, which are thought to be involved in the process of encouraging natural regeneration, some of which can be imposed in bushland areas. Plan for natural regeneration to take a role in the revegetation process, by considering some of the following.

Figure 3 Natural regeneration saves time, money and effort

These key factors are (the benefits of some of these management practices have already been outlined):

- Removal or reduction of grazing animals;
- Weed control;
- Fire – much of the Australian flora is fire–promoted, and requires fire, and the heat and smoke that it generates, to trigger germination in soil or plant–stored seed;
- Provision of microhabitats – the presence of leaf litter, logs, rocky crevices and depressions in the soil can provide protected areas where seeds have a greater chance of germination;
- Seasonal variability – most seed germination occurs in autumn and spring, and often peak germination occurs in years where the soil is warm and above average rainfall has fallen;
- Supporting fauna – many animals, such as birds, butterflies, wasps and native bees are pollinators of native flora, and are required for flowers to become fertilised and seed to be produced. In some plants, their seed must pass through the digestive system of an animal before it is primed for germination. These supporting fauna must be attracted to an area by maintaining a diverse range of indigenous plants.

Farm planning with revegetation and remnants

Any remnant management or revegetation on a farm should be well planned to ensure that the maximum benefit is derived from any works, and that all establishment and management is integrated with other aspects of the farm function. The list below is a guide to the features that should be incorporated into the planning of remnant management and/or for revegetation, and summarises the comments made in this Chapter.

1 Identify existing remnant vegetation on both your property and adjacent farms. Consider also:

a) developing an inventory of the species of plants and animals within remnant(s);

b) the habitat quality of the remnant(s), and what can be done to enhance this quality, e.g. fencing, weed control, pest animal control.

2 Consider the following in terms of strategic placement of revegetation works:

a) linkage to existing remnant vegetation on yours and adjacent properties;

b) the requirements of wildlife within the area, and the potential for utilisation of existing trees and other native vegetation as part of a corridor network.

c) the potential of revegetation to control erosion, salinity recharge and/or discharge;

d) the potential for revegetation to provide maximum physical protection to crops, pasture and stock;

e) the dispersed placement across the property of a diverse range of local species to ensure habitat provision for natural pest control;

3 Identify local sources of plants and/or seed utilised for revegetation, or identify sources of seed and cutting material for propagation. Try to ensure the use of indigenous species wherever possible, utilising local provenances.

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