

RESEARCH - PRACTICALITIES

EDGES are the places where two different landscape elements meet. In agricultural areas they often occur at the boundaries between open paddocks and patches of remnant vegetation. 'Edge effects' are processes occurring at these boundaries. Our knowledge of edge effects, especially in Australia, is in its infancy. A lot more work needs to be conducted to determine how processes occurring at edges influence plants and animals that rely on remnant native vegetation.

Edge effects can be positive or negative. In this article I am going to

WILDLIFE AND EDGES

by Gary Luck

concentrate on some of the negative impacts of edges and suggest ways in which you can plan your revegetation programs to help reduce these impacts.

The negative effects of edges on remnant bush can be many and varied. Environmental conditions at the edge of a vegetation patch can be quite different from those in the

interior. For example, plants living on the edge may be exposed to higher temperatures or greater wind forces. These changes can be detrimental to the plants' survival. They may also assist in the establishment of weeds, which often invade from adjacent cleared land.

Edges between remnant bush and open paddocks may also favour certain animal species. For example, common birds like magpies, ringnecks or galahs are able to feed in open paddocks and use the edges of vegetation patches for nesting and roosting. An increase in the number of these species, at edges, may adversely affect other birds that rely totally on the remnant.

Recent research has found that certain bird species avoid edges. Although increased competition, from species like those listed above, may be one cause, other factors like changes in vegetation or an increase in predation can also have an influence. Birds that avoid edges generally rely heavily on native vegetation and are unable to use adjacent cleared land for feeding. They are often absent from very small remnants and may only be found near the centre of large vegetation patches. To help conserve these species we need to increase the size of our remnant vegetation and reduce the amount of edge.

The impact that processes occurring at edges have on remnant bush are often associated with the size and shape of the remnant. An example of this is illustrated in Fig. 1. Looking firstly at 1a, imagine this as a square patch of remnant vegetation that is 100 ha in size. If an edge effect, eg weed invasion, penetrates for a distance of 80 m into the remnant from all sides, this effectively reduces the size of the remnant to 68 ha. That is, 32 ha of the remnant is affected by weed invasion.

Now take a look at 1b. The area of this remnant is exactly the same as the first, however, its shape has changed. If our edge effect penetrates 80 m from just one side of the

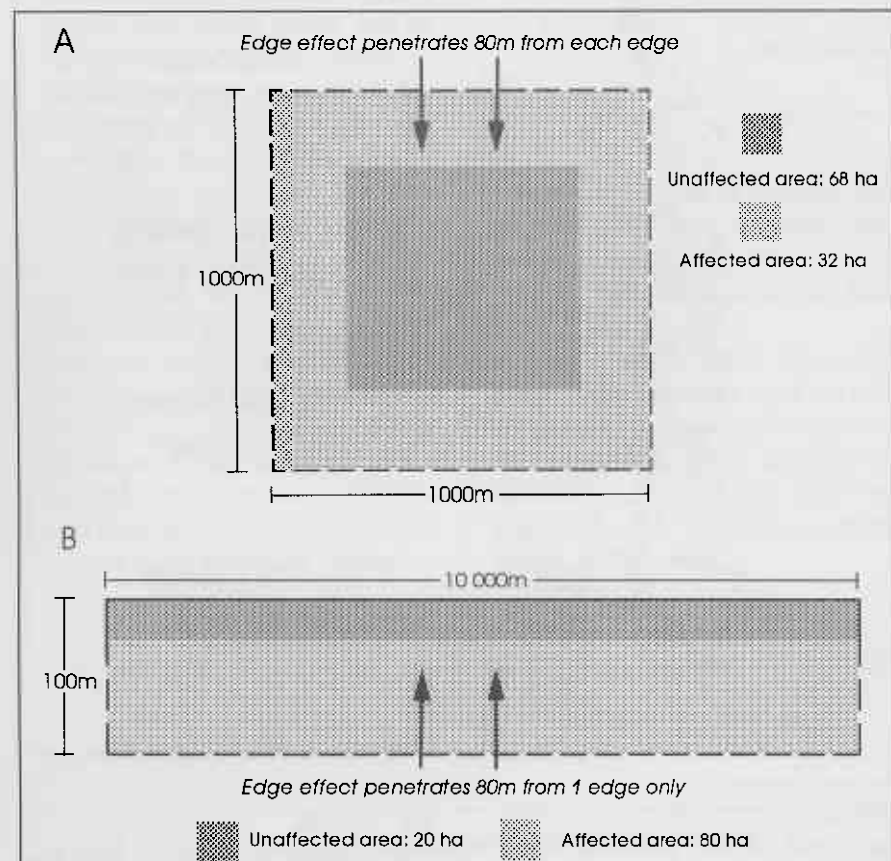


Figure 1: Illustrates how the shape of a vegetation patch can influence edge effects. Both patches are 100 ha in size, however, the affected area in patch B is much greater.

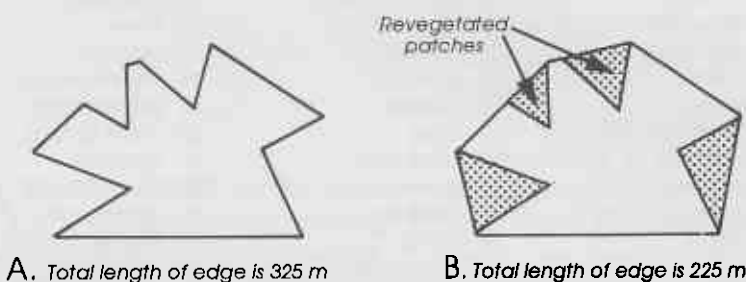


Figure 2: Illustrates a vegetation patch before and after revegetation. By revegetating in this way the length of the edge is reduced and the total area of the patch is increased.

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remnant, its size is effectively reduced to just 20 ha.

As we can see, shape does influence the impact of edge effects. However, it is often very difficult for us to just change the shape of our remnant bush. Fig. 1 illustrates another important point that may be of more practical benefit. You may have noticed that the total length of the edge increased when we changed the shape of the remnant. For example, the length of the edge in Fig 1a is 4000 m, whereas in 1b it is 20,200 m. The greater the length of the edge, the greater the impact of the associated edge effects.

Bearing this in mind, carefully planned revegetation may be able to limit the effect of edge effects in some of your remnant vegetation patches. This is illustrated in Fig 2. Looking firstly at 2a, you can see that we have an odd shaped remnant. The total length of the edge of this remnant is 325 m. The best way to reduce edge length is to revegetate as suggested in Fig 2b. Now the length of the edge is reduced to 225 m and there is the added benefit of increasing the total area of the vegetation patch.

Other ways to limit the impact of the edge effects are to revegetate close to existing remnants or to join remnants that are close together. Keep an eye out for weed invasion at the edges of vegetation patches and conduct suitable control methods on a regular basis.

Certain processes occurring at edges can have a detrimental effect on the wildlife that relies on your remnant vegetation. However, there are practical ways in which you can limit these impacts and help protect and enhance the value of your native bush. It is also important to remember that any remnant vegetation, whatever its size and shape, has some value and should be protected.

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