

# Fire and Natural Area Restoration – on Ground Experience is Key

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### **Abstract**

*Following disturbance, indigenous vegetation can be restored through a variety of means according to the type of disturbance and the resilience of the indigenous vegetation community. Fire is one of many tools available to assist with restoration, and perhaps our most powerful. Each vegetation community requires a different fire regime; as a result an individual site may have many different fire regimes.*

*To utilise fire for restoration purposes, one must be able to evaluate the resident vegetation communities and determine their post fire responses. Successful restoration using fire may require significant pre fire preparation and post fire maintenance.*

### **STRATEGIC APPROACH TO RESTORATION**

In the world of restoration there are various levels of intervention required following negative impacts to the indigenous vegetation community. In other words, a site can be restored by several methods:

- one of these methods is **‘natural regeneration’** which is when a site with very strong resilience is able to restore itself, without aid;
- **‘assisted natural regeneration’** occurs on sites where there is a capacity for natural regeneration, but the development of healthy indigenous vegetation is aided by interventions such as weeding; and
- **‘reconstruction’** could be used for sites with heavily compromised resilience, and poor quality indigenous seedbanks. These sites

may require planting or direct seeding. In extreme circumstances, soil removal or soil import may be required to successfully restore the vegetation community.

As each site is different, the methods used should be site specific, based on the vegetation types and ecosystem which are subject to restoration. In many situations, combinations of these methods are required for restoration.

One of the most important of the various tools utilised by regenerators, are their bodies, especially the eyes. Other tools include hand tools such as secateurs, loppers, mattocks, shovels, saws, backpack sprayers. Power tools like chainsaws, brush-cutters, and petrol powered spray units are also important, as are machinery such as tractors, excavators, dozers, trucks. Fire is also a tool; it is most useful when considering

natural and assisted natural regeneration methods of restoration.

Some of the plant communities and formations commonly occurring in east-coast Australia which we actively restore include; coastal heath and grassland communities, open woodlands, wet and dry sclerophyll forests, swamp sclerophyll forests, cool temperate rainforest, warm temperate rainforest, sub-tropical rainforest, dry and littoral rainforest. Each of these vegetation types can be broken into many different communities; some can also intergrade. Each requires a different fire regime.

When planning a burn, one needs to consider the “nature” of the vegetation community of the planned burn area. One must also consider the resilience of the site, the pre and post-fire habitat availability for the resident fauna. The natures of the resident weed species, and overall resources availability for pre-fire preparation and post fire maintenance.

### **COMPLEXITY OF BUSH REGENERATION**

Bush Regeneration or Practical Ecological Restoration is a trade. At least four years of on-ground training, under close supervision is required to get to the point where one is no longer dangerous. It should take at least ten years in the field to learn to manage complex restoration sites at a variety of scales in various communities.

Restoration work requires ‘real time adaptive management’. Effective restoration practitioners should be able

to read a site on a ‘meter by meter’ basis or at ‘landscape’ level for an entire National Park.

Proficiency through experience is required before utilising fire for restorative purposes. Poorly planned and executed vegetation burning can weaken the resilience of the indigenous vegetation community and expand the range of invasive weed species, which will in turn, further degrade the surrounding indigenous vegetation and impact native fauna.

### **APPROACH TO EFFECTIVE BUSH REGENERATION**

Recommendations for land managers involved with fire planning is to find someone that is capable of interpreting the indigenous landscape in a practical sense and work closely with them. Some criteria that need to be considered by land managers are provided below.

### **SITE REQUIREMENTS BEFORE BURNING**

A site may require drainage works to channel or disperse water to allow a site to say ‘dry out’ to allow a clean burn and successful seedling recruitment. It may require a machine to remove car part debris, foreign soil or blue metal dumps. Felling of trees, shrub removal or distribution of fuel materials appropriately to ‘open up’, ‘dry out’ a site may be needed to provide fuel of a suitable moisture content to allow a clean burn. Also, a site may require fuel loading or importing fuel from another site.

### **WHERE AND WHEN TO BURN**

Determining the range of vegetation communities present on site is important. Some areas may contain crucial fauna habitats that should not be burnt. Proper management of Rainforest communities is important as they are climax communities and largely require the absence of fire. Mature rainforests often cloak themselves in heavy, moisture-laden vines that protect the forest interior and act as a 'heat sink' that can be used to protect material assets.

Land and fire managers' should burn when a site is correctly prepared and on a day when a clean burn is possible to the exact point required – fire can make short work. Make sure it is used precisely. Some weed infestations may be best left unburnt and dealt with by hand or other means.

### **POST FIRE MANAGEMENT**

Land and fire managers must ensure that the resources required for post-fire management and monitoring are available. Post-fire vegetation response will often be dramatic. Follow-up may

be required as early as 4-6 weeks post burn. Post-fire weeding can be laborious, time consuming and costly.

Bush regenerators, landholders and land managers must understand the impacts of the treatments that they apply, and they must have clear instructions on how they are to be carried out. It is also important to remember that the burn itself will take a very short time. While, the resulting impacts on the indigenous vegetative communities can last for decades.

### **BIOGRAPHY**

Mr Scott Meier is the proprietor of Bushland and Rainforest Restoration Consulting. He has been working 'on-ground' for nearly 20 years. As a contractor he helps restore a diverse range of vegetation communities on the NSW east coast using all manner of techniques and tools including fire and heavy machineries. He is a member of the Australian Association of Bush Regenerators.