

Soil erosion risks and priority actions

Recovery after fire

Bushfires destroy pastures, vegetation, leaf litter and organic matter resulting in a lack of living groundcover in burnt catchments. The exposed soil is then highly vulnerable to both wind and water erosion.

A heavy rainfall event after a fire increases the risk of soil erosion, and will cause large movements of silt, gravel and rocks. Light rain on a bare soil surface breaks up soil structure. Larger drops mean high energy and the greater the storm intensity, the greater the erosive power.

For example, a 25 mm storm of one hour duration and with a drop size of 4 mm will deliver some eight million joules of power to one hectare of soil, and the total amount of water delivered is 250 tonnes. When rain falls harder than what the soil can absorb, runoff is generated. If the land slopes, the power of the water is increased. Even if only 10 per cent of this storm example is not absorbed, 25,000 litres of water will be moving across the soil surface.

Not only are your paddocks and drainage gullies at risk of soil loss, your stock and domestic water supplies are at risk of siltation and contamination. Contaminants may be from animal manure, scorched vegetation, ash and other organic material. Loss of water quality and reduced storage capacity of dams can result.

Where are the priority areas to protect?

Addressing the risk of soil erosion following a fire is one of the main priorities after dealing with livestock losses and damage. Setting up a stock containment area will allow you to manage livestock requirements while giving time for exposed soils to develop a groundcover. It is crucial that you locate stock containment areas well away from drainage lines or water sources.

For further details refer to the fact sheets: **Stock containment areas** and **Water supply for stock containment areas**.

Knowing your farm as well as you do, you will know where the likely 'trouble spots' are in terms of existing erosion, steep slopes and unstable soils. You will also know if and where fire agencies have constructed mineral earth breaks for containment lines.

As soon as possible, inspect and assess all old and new 'at-risk' areas for the potential to further erode and impact on farm and landscape recovery.



Choose the sites where erosion management will give maximum benefits. For example, the protection of a particular dam may secure water supply for livestock.

Given the multiple demands on your time and finances following a fire, it is important to focus on soil and water protection that can be achieved adequately and quickly.

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How can you reduce impacts?

Movement of soil and debris by water can be minimised by constructing temporary structures at strategic locations.

The aim is to reduce the velocity of water flow allowing sediment to drop out rather than be swept into farm dams or streams.

In many situations, fairly simple sediment traps and fences can be constructed quickly and effectively.

These temporary structures can be made from materials such as commercially available silt fabric or shade cloth, straw bales or loose straw and old fencing materials such as steel posts.

Carefully consider the type of materials used, as large flows may wash the structures downstream, adding to contaminants.

Refer to the following fact sheet and/or companion YouTube clip for practical construction steps:

- **Building a sediment fence**
<http://www.agriculture.vic.gov.au/fire-and-emergencies/recovery/farm-and-land-recovery-after-bushfire>

Erosion damage can still occur during winter and spring rainfall events, so regularly monitor your temporary structures and exclude livestock until adequate groundcover has established.

What else do you need to consider?

The longer term goal is to re-establish pastures. Fire can change pastures in different ways, depending on the:

- intensity of the fire, pasture and weed species present, fertility of the soil, timing of the autumn break and follow-up rains.

To promote pasture re-establishment, refer to the fact sheets on **Pasture recovery after fire**.

Further assistance can be provided by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR) Fire Recovery Team in the Agriculture Services and Biosecurity Branch. Contact your nearest DEDJTR office for referral to a Land Management Extension Officer.

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