

Best Practice Guideline: soil management

preamble

Bad practices such as overgrazing and the ill-siting of access tracks are often the cause of accelerated erosion. Erosion can impact ecosystem processes to the point that they no longer function and all that remains is a barren wasteland testimony to a lack of understanding and action. Erosion is a symptom of bad management and a cue to assess and modify practices. Reclamation of highly eroded areas is slow and in severe cases the impact is never mitigated.

The impacts of accelerated erosion are not only restricted to the visually obvious area but have a regional and occasionally national or global impact.

We are aware that many landowners have inherited a legacy of erosion from previous land users. This BPG is intended to inform landowners of principles guiding erosion control and to be alert to the causes.

types of soil erosion

Rills and gullies are channels that have been cut by flowing water. They may have been started by water flowing down a road or stock path. Their presence is a sign that water flows rapidly off the landscape, carrying both soil and litter with it.

Terracettes are abrupt walls that are aligned with a local contour. They can be up to 10cm high. They are progressively cut back in an up-slope direction by the water flow. Eroded materials are often deposited in an alluvial fan.

Sheet erosion occurs when very thin layers of soil are repeatedly removed across large areas by wind and water. This type of erosion is often difficult to see and monitor. It is often recognised in flat areas which are covered with coarse gravel after all the finer material has been blown or washed away.

Hummocking occurs in sandy textured soil and is a result of the sand particles collecting around obstructions, such as plants or rocks.

Pedestalling is the erosion of an area, leaving the surviving plants atop pedestals of soil above the surrounding surface layer. This occurs often when the soil type is very erodible.

control measures

Visible erosion is just the effects of a greater problem, and this problem needs to be handled before any erosion control methods are put in place.

1. Assess the situation and extent of erosion
2. Map and prioritise all the systems
3. Select a system for treatment
4. Determine the cause of soil erosion
5. Primary action: design a treatment for the **cause**
 - Implement it
 - Monitor treatment of the cause
 - Evaluate monitoring results
 - Modify designs for treatments if required
6. Secondary action: design a treatment for the **symptoms**
 - Implement it
 - Monitor treatment of the symptoms
 - Evaluate monitoring results
 - Modify designs for treatments if required
7. Maintain treatments for both the cause and the symptoms until the system is stabilized.

All erosion is easier to control and cheaper to implement in the early stages.

Gullies, dongas and rills

- o Filled with brush, straw, manure or stones – small gullies only
- o Stone gabions, both caged or not – this must be done from the top down
- o Brush check dam
- o Wire netting check dam
- o Rubber vehicle tyre walls

Sheet erosion

- o The formation of hollows
- o Brush and small fences
- o Logs or poles to stabilise slopes

Erosion around water troughs and feed stations

- o Pave surrounding area with stones
- o Rotate watering points and feed stations

Note: It is important that solid structures **slow down** the flow of water and trap silt. They must NOT attempt to stop the flow of water as this will create more damage or another donga.