

Potential impacts of tunnel erosion

- reduced productivity
- soil and nutrient loss from property
- injury to livestock
- damage to farm equipment
- harbor for rabbits and wombats
- sedimentation of dams and waterways
- the potential to turn into highly active gully erosion (Figures 3 & 5)
- negative impact on the Gippsland Lakes' water quality.

Figure 5: Illustrating potential damage of tunnel erosion.



Known susceptible areas

- Mitchell River escarpments
- Glenaladale
- Melwood
- Mount Taylor
- Clifton Creek
- Bruthen
- Kalimna
- Stratford



Tunnel Erosion

An early identification guide for East Gippsland

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Tunnel erosion is

..... a naturally occurring process -

A process where the subsoil is eroded by water forming underground tunnels. It is often associated with soils that have a hard-setting top soil over a subsoil (clay) which may be stable when dry but readily disperses when wet (Figure 4).

Identifying tunnel erosion in the early stages is difficult as indications are small areas of clay deposits and/or holes in the surface soil on lower slopes. As more subsoil is washed down through the 'tunnels' fan shaped clay deposits or flumes form as shown in Figure 1.

As more subsoil is washed away, the tunnels deepen and widen until the roof of the tunnel cannot support its own weight and collapses forming holes. At this stage the erosion is already well advanced. Eventually more tunnels collapse forming an active gully (Figure 2, 3 and 4).

Early detection of tunnel erosion will increase the chances of successful control measures, reducing the repair costs and limit the damage to productive farmland and the Gippsland Lakes.



Figure 1: Clay deposits rising to the surface through an outlet, creating a 'fan' shape.

Early signs of tunnel erosion

- Small holes and/or indents appearing in the pasture.
- Water 'spouting' from small holes in the ground following heavy rain.
- Clay particles deposited in a fan shape on the paddock surface (Figure 1).
- 'Drying off' lines in pasture caused by shallow soil depth (Figure 2).
- Collapsing surface soil creating elongated ditches, usually running down a slope (Figure 3).

Productivity and whole farm assets are threatened by tunnel erosion.



Figure 2: Partial collapse of tunnel with drying off lines visible.



Figure 3: Tunnel collapse and surface clay deposits.



Figure 4: Start of gully formation.