

Post-Bushfire erosion - Tumbarumba

The Issue

Streams in the Upper Murray have been impacted by Bushfire and flooding over the past 3 years.

The Upper Murray is the headwaters of the Murray, upstream of the Hume Weir on the NSW side. This site is in the Munderoo Ck Catchment, near Tumbarumba

The unnamed tributary had a major headcut that was reactivated after being impacted by the 2020 Black summer Bushfires and the landholder's attempt to create access across the deepening creek was unsuccessful.

The Solution

The major headcut is working into an intact valley fill feature in the upper reaches. This landscape feature has highly dispersive soil and subsurface trickle flows, so there was no engineering solution for the headcut.

Instead, Soil Conservation Service installed multiple instream structures using timber recovered from the fire impacted area and rock to create instream bed and sediment control and ensure access for the landholder.



Figure 1. One of several active headcuts.

The Impact

There is nothing we can do about the headcut at the top of the system but trapping the sediment near to where it has come from will help to reduce bed deepening in the upper reach and prevent that sediment moving to cause degradation in the downstream reaches.

Bare ground in the catchment after fires means higher volumes of runoff. Streams and waterways that have little vegetation cover and vulnerable soils have little resilience, and the channel tries to adjust to the higher volumes by getting deeper and/or wider.

Addressing deepening is the highest priority – without that the stream will never stabilise.

Streambank erosion (cutting in the outside bends) may actually be a sign of healing of the system as the stream loses its energy by re-establishing the meander pattern. This may only be a problem if it is impacting on infrastructure or the stream is changing course in a way that is problematic for management.

Any stream that is third order or above requires a controlled activity permit for any instream works, or to be undertaken by an exempt authority (Soil Conservation Service or Local Government). Go to the Water Front Land e-Tool to determine what permit you may require.

<https://water.dpie.nsw.gov.au/licensing-and-trade/controlled-activity-approvals/waterfront-land-e-tool>

Fencing and revegetation are essential tools for the recovery of waterways.



Figure 2. Post fire, the deepening of the creek meant that access to the half the property was cut off. Previous crossing attempts had multiple failures and caused large amounts of sediment to move down stream



Figure 3 – this structure has a double benefit of being a grade control (slowing flow and trapping sediment above) and providing stable, long lasting access across the creek.

“After the fires the creek just got so deep and we lost access to the other side of the place. Having a permanent crossing that is safe from erosion and will help stop erosion upstream as well”

– Landholder, Upper Murray Region

For more information

Contact your nearest Local Land Services office on 1300 795 299 or visit our website

www.lls.nsw.gov.au