

## **Hillslope erosion and post-fire sediment trapping at Mount Bold, South Australia**

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**Abstract** Successful placement of sediment traps requires an understanding of how hillslope morphology influences erosion. Following the 2007 Mount Bold wildfire, in South Australia, a 1 in 5 year rainfall event resulted in the failure of many sediment traps due to substantial sediment movement within the reservoir reserve. This study assesses how hillslope morphology can influence post-fire surface erosion and the subsequent appropriate placement of sediment traps. Erosion pins and sediment traps were used at five different sites to measure hillslope surface change and trapped sediment volumes. Terrestrial laser scanning was used to model surface change where slope gradients are 1:2 or greater. Surface change was assessed in relation to slope gradient, slope length, cross-slope curvature, hillslope position and fire severity. The results suggested a threshold for substantial increased sediment yield at slope gradients of 1:2. The findings also suggested that concave cross-slope curvatures were associated with significantly larger amounts of sediment movement.

**Key words** water reservoir; sediment trap; erosion pins; terrestrial laser scanning; slope gradient; cross-slope plan curvature, South Australia