



Effects of managed burning upon Dissolved Organic Carbon (DOC) in soil water and runoff water following a managed burn of a UK blanket bog

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The burning of heather and grass to maintain a mosaic of different aged vegetation stands is a widespread and common management practice in the uplands of the UK. However, there is concern that burning contributes to the release of dissolved organic carbon (DOC) into drinking water supplies.

This study was based on long term experimental plots in the North Pennines of the UK examining different rotational burning cycles and grazing intensities on upland vegetation. The study aimed to understand the effect these management practices have on water quality both in the long term and in the short term following a managed burn. The study has found that:

1. At the end of a burn cycle, DOC concentrations in soil water or runoff water are not significantly affected by burning treatment. However colour (absorbance at 400nm) was found to be significantly lower on 20 year burn plots than unburnt controls.
2. In the weeks following the burn there were peaks in DOC concentration and colour in the soil water of burnt plots compared to unburnt controls but these peaks were short lived and neither DOC concentrations nor colour were significantly elevated one year after burning.
3. The composition of the DOC in soil water and runoff water is not affected by burning treatment; rather, the variation in data is controlled by time of sampling and season.
4. Values for three carbon parameters (absorbance at 400nm, DOC concentration and specific absorbance) are significantly lower in runoff water than soil water.
5. Grazing does not significantly affect carbon parameters in soil water at the end of a burn cycle however grazing effects can be seen in runoff water at the end of a 10-year burn cycle.