

CENTRE FOR EVIDENCE-BASED CONSERVATION

Systematic Review No. 1

Does Burning Degrade Blanket Bog?

Summary of Report

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SUMMARY

Background

Burning has a significant impact on the floristic composition of many areas in upland UK. Blanket bogs are one of the upland communities of conservation concern. The effects of burning on blanket bog need to be reviewed systematically in order to determine whether or not burning is compatible with nature conservation objectives.

Objectives

To determine whether burning degrades blanket bog vegetation in Great Britain and Ireland.

Search Strategy

The following computerised English language databases were searched: English Nature's "Wildlink", JSTOR, ISI Web of Knowledge (comprising BIOSIS previews, CAB Abstracts, Derwent Innovations Index, INSPEC, ISI Current Contents, ISI Proceedings, ISI Web of Science), Index to Theses Online. Additionally, the reference lists of articles were searched and selected authors, recognised experts and current practitioners in the field of upland ecology were contacted for further references.

Selection Criteria

Primary, quantitative studies of burning on blanket bog or wet heath in Great Britain and Ireland (NVC types: M1, M2, M3, M17, M18, M19, M20, M21 and on peat >50 cm deep, M15, M16, M25, U6) with appropriate controls or other unburnt comparators. The outcome was any change in floristic composition interpreted in the context of Common standard monitoring (CSM) favourable condition criteria.

Data collection and analysis

Inclusion decisions, quality assessment and data extraction were duplicated, and consensus achieved by discussion or a third party. Some authors were contacted for missing data. The primary measure of effect was favourable condition status derived from floristic composition data. Attempts at quantitative analysis using Random effects meta-analyses, Detrended Correspondence Analysis (DCA) and Canonical Correspondence Analysis (CCA) were severely constrained by the nature of the data, thus vote counting proved the most effective means of data synthesis.

Main Results

Eight articles were included. These reported the results of 11 independent datasets. Three datasets indicated that burning degraded blanket bog, five were contradictory and three indicated that burning did not degrade blanket bog. The evidence for degradation became stronger when randomized controlled trials were distinguished from site comparisons. However, these outcomes are dependent on interpreting changes in floristic composition in the context of favourable condition criteria. They are not robust to changes in favourable condition criteria and were subject to problems of scale, standardisation and repeatability.

Overall Conclusions

The weight of available evidence suggests that burning either degrades blanket bog or is contradictory in effect. If quality of evidence is used to discriminate among studies then the evidence for degradation becomes stronger. However, a degree of circumspection is required given the small sample size, variable timescales of the studies and problems in the interpretation of favourable condition. Significantly, only one article (2 datasets) reported on the effects of rotational burning. It is clear that more high quality research and monitoring of burning on blanket bogs is required, in particular, long term studies that deal with more than one burning rotation. Pending further research it is suggested that burning on blanket bog and wet heath should normally be avoided if favourable condition is to be achieved or maintained.