

Annual extent of prescribed burning on moorland in Great Britain and overlap with 'deep peat'



Mike P. Shewring¹, Nicholas I. Wilkinson¹, Emma L. Teuten¹, Graeme M. Buchanan¹, Patrick Thompson¹, David J. T. Douglas¹

¹RSPB Centre for Conservation Science, RSPB Scotland, 2 Lochside View, Edinburgh Park, Edinburgh, EH12 9DH, UK

Introduction

What is moorland?

Moorland = unenclosed heath, grass and blanket bog.

Why is there prescribed burning in UK moorland?

Prescribed burning is undertaken to enhance grouse productivity and to a lesser extent for grazing.

Why do we want map this?

RSPB has long-standing concerns over the environmental impacts of driven grouse shooting and burning. The overall weight of evidence suggests that burning on peat soils has a negative impact on ecosystem services. This led to calls for a ban on upland prescribed burning in 2020 by the CCC and regulation in protected areas and over deep peat by the UK government in 2021.

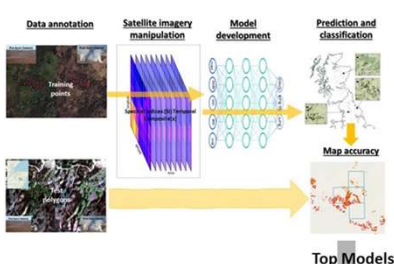
One aim of our work is to assess compliance with best practice guidance and Government regulations"

Methods

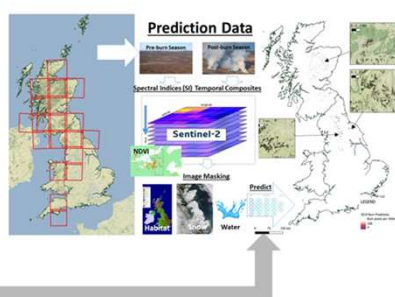
Our methods utilised the following workflow (illustrated in Fig 1.);

- Annotating training and testing data,
- Satellite imagery manipulation,
- model development, and
- subsequent classification and map accuracy evaluation

Model development and evaluation workflow



GB burn prediction workflow



Results

- Our model showed a high accuracy (Balanced accuracy 84.8%).
- Burning was mainly detected in Northern England, South-East Scotland and the Central and Eastern Scottish Highlands, with smaller areas in Wales (Fig. 2)
- Average **5,198 ha** (± 250) or 34% by area of moorland burning in Great Britain occurred over deep peat
- Varied from 28% (**5,246 ha ± 778**) in 2020/21 to 41% (**8,552 ha ± 652**) in 2018/19
- Annual extent in England in 2021/22 was 73% lower than the average of the four previous seasons.

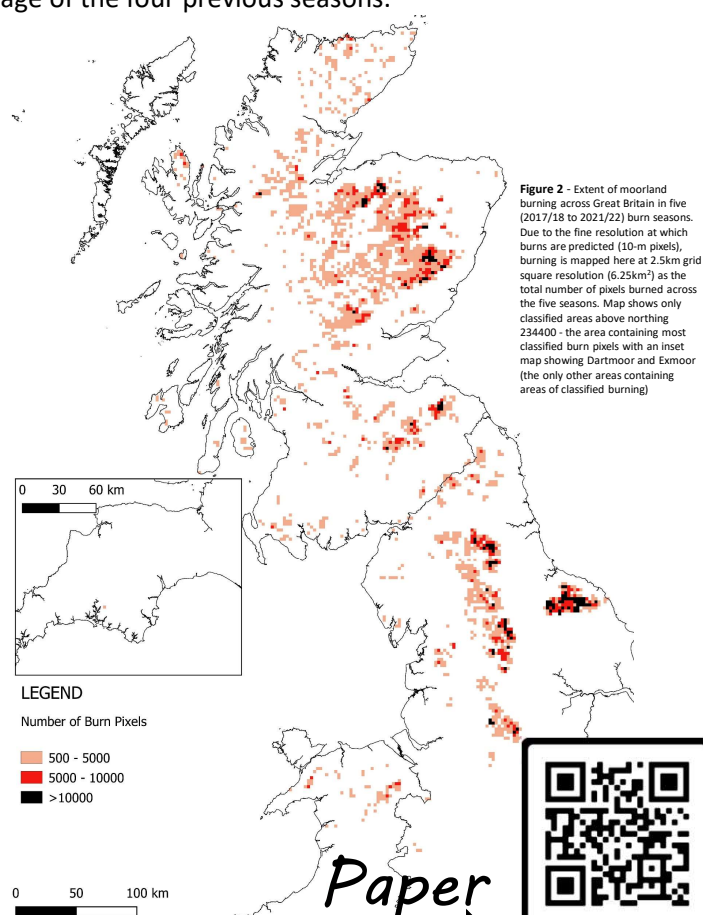


Figure 2 - Extent of moorland burning across Great Britain in five (2017/18 to 2021/22) burn seasons. Due to the fine resolution at which burns are predicted (10-m pixels), burning is mapped here at 2.5km grid square resolution (6.25km²) as the total number of pixels burned across the five seasons. Map shows only classified areas above northing 234400 - the area containing most classified burn pixels with an inset map showing Dartmoor and Exmoor (the only other areas containing areas of classified burning)

Conclusions

- Burning is still widespread over deep peat.
- Regulation of burning in England may be having the desired effect of reducing total burned area over deep peat
- 4% of English upland deep peat unprotected by regulations

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