

Fire Interdisciplinary Research on Ecosystem Services: fire and climate change in UK moorlands and heaths (FIRES)

SEMINAR 2

The impact of wildfire on ecosystem services: relationships between wildfire, climate change and people

The University of Manchester, 24th June 2008

Session 3:

***How will a changed wildfire regime affect ecosystem services?
What are the research needs***

Biodiversity breakout group

Rapporteur's Report of Discussion

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1. The relevant ecosystem services identified related to biodiversity and wildfires included:-
 - ecosystem stability (ie the effect of mass loss of a/many species as a result of climate change), keystone species important e.g. heather, heather beetle, grouse;
 - the support of grouse for sport;
 - the provision of biodiversity for recreation/amenity;
 - the role of biodiversity in sequestration of C (and effects on DOC, POC, flooding if vegetation lost).
2. It was noted that climate could affect the wild fire regime, which in turn could affect biodiversity. In addition, climate change could affect biodiversity, which could in turn affect the wild fire regime.
3. Changes in the wild fire regime which could affect biodiversity include:
 - more frequent +/- more severe fires which could result in:
 - total loss of root mat and seed bank;
 - production of bare peat/soil;
 - changes in dominant vegetation type.
4. Changes in biodiversity in response to climate which could affect fire regime include:

- changes in bracken cover (reduce with higher temperatures and drier soils, or replace heather and increase);
- changes in European gorse cover - increase could lead to more, and more severe, fires;
- non-viable grouse populations in England resulting in complete change in land use.

5. Research ideas:

- What are ignition points for different fuel layers - dwarf shrub heath/moss/litter? What are the implications of change in risk with climate change, geographically and in time through the seasons?
- Further research needed on the consequences of severe fires on ecosystems and their services.
- To what extent would more frequent fires change dwarf shrub heath to grassland ecosystems?
- What is the effect of the last question on the incidence of fires? If dwarf shrubs change to *e.g. Molinia* on flushed slopes, there could be more spring fires; if *Nardus*, possibly few fires? If *Agrostis setacea* in the SW increases at the expense of dwarf shrubs, what are the implications?
- What factors affect 'curing' of different species - how will these change with climate change?
- Will blanket bog dry more in summer; is it then more susceptible to fires?
- What changes in land management might be predicted as a consequence of climate change and how will this affect biodiversity, *e.g.* if grouse are lost? What effect would any management changes have on the fire regime?
- What adaptive management could assist in reducing any increased fire risk/hazard and moderating ecosystem changes?