

Fire, Interdisciplinary Research and Ecosystem Services:

Some reflections on the FIRES series

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Origins of Fire

Fire has a long history in UK moorlands and heaths

Fire is an integral part of moorland management
Agriculture, sport, tradition, ...

Management priorities are changing
Economic landuse, biodiversity, recreation, carbon storage, water quality

Differing Attitudes to Fire

Land owner, forester, conservationist, park ranger, water authority, fire & rescue service, politician, scientist, social scientist

Way of life

– potential catastrophe must be extinguished

“All fire is bad”

– a lot of fire is good

Ecosystem Services

Importance of Fire Regime

Limited data:

- Biodiversity
- Carbon
- Water quality

Ecosystem Services & Climate Change

Things will change

– everything else is uncertain

Complex interactions between fire and:

climate

land use

human behaviour

Managing Fire in Changing Climate

Zero-tolerance of fire (at risk of rare severe fire events)?

– or use fire to manage fuel?

What is best fire regime for new ecosystem management objectives?

Small climate impacts can trigger major shifts in whole system

Technological Developments

Practitioners need simple tools

Understanding of fire behaviour

Evaluate performance of forecast models

- extend MOFSI
- assess thresholds for access closure

People as ignition sources

People are major cause; correlation to access points
∴ need to know more about **public attitudes to fire risk**

To improve effectiveness of public education on WF risk without encouraging arson.

How do **climate change, people and wildfire (WF) risk interact?**

Will climate change increase visitor pressure as assumed?

Would this increase the incidence of fire (more ignition sources), or more pairs of eyes for early detection?

Relative priority of WF

Resource-intensive and challenge FRS resilience,
yet **lower priority** than structural fires
UK wildfires cause environmental damage, but
'mildfires' in terms of loss of life and buildings

**Importance of redefining moorland and
heathland ecosystem services (ES) as
'property' with a costed asset values**

Higher priority for FRS suppression and forensic
investigation (little relative to Europe)

Easier to prosecute arson cases

Appropriate valuation tools needed to judge costs of
prevention & suppression against benefits of ES
saved.

Livelihoods

Sustainability must be social, cultural and economic as well as environmental

Who should pay for managing ecosystem function?

Land use factor

Importance of **land abandonment** in increasing wildfire risk

In Spain, this poses a greater long term threat of WF than climate change via effect on fuel load.

Parallels in UK; grazing intensity?

Fuel load management is critical but raises many issues:

In Spain and Italy, importance of fuel load management in wildfire is poorly understood. Who should pay for this once land is abandoned?

Conflicting evidence in UK for effects on regulating and supporting ecosystem services

Importance of fire regime.

Indirect effects of climate change

Climate change and socio-economic change may interact to increase wildfire risk;

e.g. What happens if a warmer climate makes moorland less viable for grouse shooting and there is no longer an incentive to actively manage upland vegetation?

Policy response to climate change may inadvertently increase wildfire risk

e.g. What happens if low carbon economy encourages more UK-based holidays, will this then increase WF risk?

Potential policy conflicts

Trade-offs between ES e.g., biodiversity, carbon, clean water, grouse production & livelihoods, recreation, *etc.*, or is it possible to manage them synergistically?

Likely to be **trade-offs between ES and WF**

e.g. Policies which result in changed fuel load, species composition or public access are likely to change WF risk

Silo policy-making is unwise. Complex interactions require joined-up thinking

National needs for WF

Improve reporting of vegetation fires

Incident Reporting System is the opportunity

Make GPS location of fire ground and other critical data fields mandatory in IRS.

Access to other databases

Training/knowledge exchange

E.g. on completing IRS forms; GPS, fire behaviour

Holistic approach, exchanging skills between land managers, FRS, academics and other stakeholders

Maintaining continuity; high turnover of WF officers

Local best practice, but evident need for a **UK national policy towards wildfires**. Lessons to be learnt from Europe.

Conclusion

Diversity of opinions

Uncertainties

Complex interactions

Need for joined-up thinking

Where next?