**FIRES Follow-on Survey Results**

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**Context 1** | **FIRES seminar series**
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Fire Interdisciplinary Research on Ecosystem Services: Fire and climate change in UK moorlands and heaths
- 4 residential seminars, March 2008 - May 2009
- Funded jointly by ESRC and NERC. In-kind support and funding from Scottish Natural Heritage, Game & Wildlife Conservation Trust, Peak District National Park, etc
- Interdisciplinary; ecologists, physical and human geographers, fire science, economists, statisticians, etc
- ~60% of participants were practitioners
- Cross-sector: fire service, land managers, government agencies, academics.

[www.fires-seminars.org.uk](http://www.fires-seminars.org.uk)

**Context 2** | **FIRES remit**
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**Context 3** | **FIRES Policy Brief**
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- 4-page leaflet written by FIRES seminar series steering group, Feb 2010
- Three sections
  - Key messages (KM)
  - Policy recommendations (PR)
  - Knowledge gaps (KG)


**Context 4** | **FIRES policy brief: further information on KM, and policy recommendations**
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FIRES policy brief: knowledge gaps

Steering Group
- Julia McMorrow, University of Manchester;
- Colin Legg, University of Edinburgh;
- Jonathan Aylen, University of Manchester;
- Jonathan Walker, Moors for the Future Partnership;
- Klaus Hubacek, University of Leeds;
- Claire Quinn, University of Leeds;
- Mark Jones, Chief Fire Officers’ Association;
- Simon Thorp and Marion Thomson, The Heather Trust;
- Gina Cavan, University of Manchester.

www.fires-seminars.org.uk

Aims of online survey

- To obtain cross-sector feedback on the three areas of the Policy Brief:
  - Key messages
  - Policy recommendations
  - Knowledge gaps
- To raise awareness of wildfire in the UK
- To inform further research

Objectives

- To gauge opinion on:
  - relevance and impact of the policy brief
  - most important key messages, policy recommendations and knowledge gaps
  - feasibility of implementing policy recommendations
  - reasons for respondents’ choices
  - omissions from policy brief
- To analyse how these opinions vary with respondents’ sector

Methods

1. Online survey
2. Analysis

Methods 1 | Online survey

- Survey Monkey Professional online survey
- Piloted by FIRES steering group and England and Wales Wildfire Forum
- Target: stakeholders involved in wildfire research, management practice and policy development
- Emailed to >140 on FIRES list, >200 on IUCN UK Peatlands programme list (cross-posts removed)
- Advertised on stakeholder websites
- Ran from late August - mid October 2010
- Personal opinion, not necessarily their organisation’s
- Anonymous unless respondents chose to provide name. All responses anonymised for reporting

Methods 2 | Analysis

1. Descriptive statistics (% of total for each answer)
2. Cross-tabulation of key question responses against sector
3. Qualitative analysis of free text comments for Key Messages and Knowledge Gaps - ‘spectrum of opinions’ including quotes
4. Barrier/opportunity analysis1 of free text comments for Policy Recommendations:
   - Agreement, Knowledge, Technical, Economic, Social and Political

Results

1. Respondent profile, relevance, awareness
2. Key messages
3. Policy recommendations
4. Knowledge gaps
5. Omissions

Responses
- High response; 154 respondents, of which 97 completions
- Rich data set; >1100 free text comments
- Good cross-section of sectors

Relevance
- 82% (80) found the Policy Brief very or quite relevant to their work
- 58% (60) of those completing the survey wanted to be kept informed (39% of total)

Awareness
- Survey raised awareness; at least 35% (43) of total respondents were previously unaware of policy brief (44% of answers to this question)

Overview: respondent profile, relevance, awareness: summary

Overall response rate
- Respondents starting survey, total ($n_1$) = 154
- Respondents completing survey ($n_c$) = 97
- Respondents completing a particular question ($n_Q$), varied

Response rate for respondent profile:
- Relevant sector(s); 100% (154)
- Area of responsibility (AoR); 63% (97)
- Awareness of policy brief; 63% (97)
- Attendance at FIRES seminar series; 63% (97)
- Contact details; provided by 39% (60) of total, 58% of those who completed the survey

Which sector best describes your work?

- Mainly government/public sector (41%). Practitioners comprised 74%

'Land Management' sector encompassed a wide range of professions with potentially differing viewpoints on wildfire management

Cross-sector, good mix. Land management sector very broad.
82% (80) found the policy brief very or quite relevant to their work.

### Results 1.5: Relevance of policy brief

<table>
<thead>
<tr>
<th>Relevance to work</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not relevant</td>
<td>1</td>
</tr>
<tr>
<td>Slightly relevant</td>
<td>16</td>
</tr>
<tr>
<td>Quite relevant</td>
<td>39</td>
</tr>
<tr>
<td>Very relevant</td>
<td>41</td>
</tr>
</tbody>
</table>

### Results 1.6: Awareness of FIRES seminar series

Survey reached new audiences.

### Results 2: Key messages

- Respondents were asked to:
  - Select three most important key messages
  - Provide a brief justification for selection
  - Identify any we missed

- 73% response rate (113)
- 113 free text responses. Included very different, polarised interpretations of the shortened wording of the Key Messages
- 42% response rate (64) to ‘Any key messages we missed?’ Some relate to aspects which were covered in the policy brief.

### Results 2.1: Top three key messages

- Of the key messages identified in the policy brief, which do you consider are the three most important?

<table>
<thead>
<tr>
<th>Top 3 are unifying ‘boundary concepts’ with wide appeal</th>
</tr>
</thead>
<tbody>
<tr>
<td>KM7: Wildfire management needs combined strategies of fire suppression, prevention &amp; protection</td>
</tr>
</tbody>
</table>

### Results 2.2: Spectrum of opinion for top key message

<table>
<thead>
<tr>
<th>Spectrum of Responses</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined strategies are required / achieved through PB*</td>
<td>&quot;If you combine all three [fire suppression, prevention and protection] you get the most effective strategy!&quot;</td>
</tr>
<tr>
<td>Need more training and resources</td>
<td>&quot;I strongly believe that the recorded community and emergency services are under resourced in being able to deal with wildfires.&quot;</td>
</tr>
<tr>
<td>Prevention and protection not achieved through PB*</td>
<td>&quot;Prevention and protection measures alongside a reduction in heather cover are a more sustainable means of managing the risk associated with wildfires.&quot;</td>
</tr>
<tr>
<td>Prevention and protection are achieved through PB*</td>
<td>&quot;Awareness that managed moors can reduce the risk of potentially damaging wildfires is vital. By removing all burning on certain habitats, i.e. blanket bogs, there is an increased risk of wildfires spreading further.&quot;</td>
</tr>
<tr>
<td>Prevention and protection most important</td>
<td>&quot;More emphasis on preventative/land management as a key strategy (as well as suppression) is required!&quot;</td>
</tr>
</tbody>
</table>

### Results 2.3: Spectrum of opinions for 2nd and 3rd ranked key messages

<table>
<thead>
<tr>
<th>KM5: Wildfire management needs combined strategies (PB) Economic cost to FRS Environmental/ES cost need to be linked to economics Environmental/ES costs are important Social costs also important</th>
</tr>
</thead>
<tbody>
<tr>
<td>KM10: Partnership working is an effective and efficient approach to address the wildfire problem Partnership working needed to increase understanding Partnership working needed to develop common objectives and solutions Partnership working needed to improve response Partnership working is already achieving results</td>
</tr>
</tbody>
</table>

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*PB = Prescribed burning*
Policy Recommendations

For each
- Feasibility on 4-point Likert scale with ‘No opinion’ option
- Reminder that recommendations fully explained in policy brief
- Any specific barriers or opportunities e.g. policies, legislation or practical issues

Then
- Select the three most important
- Provide a brief justification for selection

Response rate
- 70% response rate (107)
- Any we missed? 14% response rate (22)

Results 3.1 Top three policy recommendations

1. Establish a cross-sector wildfire risk assessment; so that wildfire risk is integrated into management plans
2. Support partnership working through capacity building and the nation-wide sharing of best practice; and the development of the wildfire information management systems
3. Support partnership working through collaborative research initiatives

Results 3.2 Feasibility analysis of policy recommendations

For the top Policy Recommendations, analysis is shown for:
- Overall feasibility
- Feasibility by sector
- Free text comments on barriers or opportunities summarised as either; agreement, knowledge, technical, economic, social or political

Barrier / Type Relating to:
Agreement Views / opinions / participation
Knowledge Knowledge base / understanding / data (management)
Technical Practical / operational / training / coordination / communication
Economic Money / funding / economic value
Social Public perception / public awareness
Political Policy / politicians awareness or opinions

Results 3.3 Feasibility of top ranked policy recommendation (PR2)

PR2 “Establish a cross-sector wildfire risk assessment”; so that wildfire risk is integrated into management plans

Results 3.4 Feasibility of PR2 by sector

PR2 “Establish a cross-sector wildfire risk assessment”; so that wildfire risk is integrated into management plans

Academic/research, Govt/public sector and Consultancy/private were optimistic. Charity/NGO equivocal

Results 3.5 Barrier/opportunity analysis for PR2

PR2 “Establish a cross-sector wildfire risk assessment”; so that wildfire risk is integrated into management plans

Key
- Agreement
- Funding
- Technical
- Political
- Knowledge
- Economic

Barriers dominate
Results 3.6 Feasibility of PR5b (ranked 2nd)

PR5b “Support partnership working through Local Fire Groups, e.g. to coordinate best practice”

Feasibility of PR5b by sector

Results 3.7 Feasibility of PR5b by sector

All sectors were optimistic

Results 3.8 Barrier/opportunity analysis for PR5b

PR5b “Support partnership working through Local Fire Groups, e.g. to coordinate best practice”

Results 3.9 Feasibility of PR4 (ranked 3rd)

PR4 “Establish a combined wildfire strategy of prevention and suppression including risk and fuel reduction”

Lower feasibility than other PRs

Results 3.10 Feasibility of PR4 by sector

Results 3.11 Barrier/opportunity analysis for PR4

Barriers dominate, especially Agreement barrier
**Results 3.12** Feasibility of PR1 (ranked 4th)

PR1 “Establish a nationally consistent wildfire evidence base”

Wildfire evidence base considered relatively feasible

$n_Q = 107$

**Results 3.13** Feasibility of PR1 by Sector

PR1 “Establish a nationally consistent wildfire evidence base”

All sectors optimistic

$n_Q = 107$

**Results 3.14** Barrier/opportunity analysis for PR1

PR1 “Establish a nationally consistent wildfire evidence base”

Barriers dominate

$n_Q = 52$ (2 proposed >1)

**Results 3.15** Feasibility of PR6 (ranked 6th)

PR6 “Fund research to address the knowledge gaps” identified in the Policy Brief

Mixed opinions on feasibility but majority are positive

$n_Q = 107$

**Results 3.16** Feasibility of PR6 by Sector

PR6 “Fund research to address the knowledge gaps” identified in the Policy Brief

Consultancy/Private sector least positive

$n_Q = 107$

**Results 3.17** Barrier/opportunity analysis for PR6

PR6 “Fund research to address the knowledge gaps” identified in the Policy Brief

Economic barriers clearly dominate

$n_Q = 42$
Results 4 | Knowledge gaps

For each:
• Select three most important
• Provide a brief justification for selection
• 65% response rate (100)
• Any we missed? 16% response rate (25)

Results 4.1 | Top 3 Knowledge Gaps

1. Data and procedures to improve the evidence base
2. Appropriate fire regimes for each ecosystem service
3. Regional variation in fire regimes, including relationship between prescribed burning and wildfire

Results 4.2 | Spectrum of opinions for top knowledge gap

KG1: Data and procedures to improve the evidence base

Spectrum of Responses
Consistency in data collection is required
Need to further understanding / data currently limited
Need to raise awareness of wildfires / awareness instigates policy change
Data and procedures will improve / inform management response
Data and procedures will assist (provide evidence for) monitoring / targets

Example
“If all data collection and procedures were carried out the same way this would give a very large statistically sound evidence base”
“For most areas there is little accurate and comprehensive information on wildfire”
“Evidence and costing - it’s a complicated picture, so it needs extra effort to link scientists, policy makers and operational managers”
“The data used and the procedures are very important for providing evidence of fire regimes, fire risk and how that informs fire management in the UK”
“Without data and an effective evidence base any of the other recommendations can not be measured to ensure success”

Results 4.3 | Spectrum of opinion for knowledge gaps ranked 2nd & 3rd

Knowledge gap 3: Regional variation in fire regimes...

Spectrum of Responses
Need to further understanding of regional variations
Partnership working required to further this understanding
Variation should direct / affect management response
Localised responses are needed
Need to further understanding of relationship between prescribed burns / wildfire

Knowledge gap 4: Appropriate fire regimes for each ecosystem service

Spectrum of Responses
Need to increase understanding of fire impact on ecosystem services
Need to link increased understanding of ES to economic valuations
Different criteria for different ES / areas will require specific responses

Results 5 | Omissions from policy brief

Themes emerging from free text comments on omissions from KMs, PRs, KGs and 'Any other comments'. To counter path dependency from composition of steering group and seminar participants.

Real omissions
• Arson, communication strategy, public education
• Longer-term perspective, paleoecology
• Grazing & cutting for fuel management
• Remotely sensed data sets
• Literature review to give credence

Perceived omissions (actually in Policy Brief):
• Importance of local conditions, especially peat soil
• Socio-economic drivers
• Training, safety, equipment, forecasting.

Results 6 | Conclusions

• Key differences in views
• Key similarities
• Key priorities and fit to policy context
• Limitations and recommendations for further work
### Results 6.1 | Key differences in views: prescribed burning

On prescribed burning, policy brief criticised for being both:

**Too anti-prescribed burn (PB)**
- Not enough emphasis on positive aspects of prescribed burning
- Undervalued (subjugated) local knowledge of land managers
- Fire can be good: “PB and WF are not linked [in a negative way]”

**Too pro-prescribed burn**
- Not enough emphasis on negative impacts of PB (especially on biodiversity and carbon).
- Driver for PB is economic, not WF fuel reduction.

Evidences the challenge of superimposing a cross-cutting issue onto multiple land uses and separate policy sectors.

### Results 6.2 | Key differences in views: scale of strategies needed

Different scales of management strategies favoured:

- **Local** strategies favoured fire group partnerships
- **National** strategy and coordination favoured to protect national assets and meet EU regulations

Majority were more optimistic about local solutions.

### Results 6.3 | Sectoral differences?

Sectoral differences tested were not statistically significant.

KM, PR and KGs which were most strongly associated with direct management were preferred over those on increasing understanding or theoretical aspects. Reflects practitioners as the dominant group.

### Results 6.4 | Key similarities

- **Partnership working**
  - 3rd top KM, 2nd top PR
- **Combined strategies & cross-sector approach:**
  Wildfire is more than a fire sector problem, it’s land management problem too.
  - top KM, 3rd top PR, and top PR, 2nd top PR, respectively
- **Improved evidence base** (fire statistics)
  - top KG, 4th ranked PR
- **Understanding fire regimes:**
  - 2nd & 3rd top KGs Regional variation in fire regimes, including relationship between PB and WF, and KG4. Appropriate fire regimes for each ecosystem service
  - Impact of climate change

### Results 6.5 | Priorities and policy context

<table>
<thead>
<tr>
<th>Survey priority</th>
<th>Policy context</th>
<th>Challenge (*) opportunity (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership working</td>
<td>Localism/Big Society</td>
<td>Government response to Fire Futures consultation: National Local</td>
</tr>
<tr>
<td>Combined strategies &amp; cross-sector approach</td>
<td>Single department lead on wildfire, DCLG</td>
<td>Policy silos; fragmented governance of the WF hazard chain between fire and land management sectors</td>
</tr>
<tr>
<td>Evidence base</td>
<td>Transparency agenda</td>
<td>DCLG user consultations on reporting and access to fire statistics</td>
</tr>
<tr>
<td>Understanding regional fire regimes</td>
<td>Climate change</td>
<td>DEFRA Climate Change Risk Assessment Improved fire data. Engage DECC</td>
</tr>
</tbody>
</table>

### Results 6.6 | Limitations and recommendations for further research

**Limitations**
- Mailing list bias towards uplands / peat landscapes
- The need to abbreviate policy brief questions contributed to misinterpretation, or reinforced existing strongly held views. Full statement and explanation in the policy brief but wasn’t always referred to.

**Recommendations for further work**
- Further cross-tabulation and statistical testing of differences between sectors
- Analysis theoretical and policy context
- Larger sample from wider range of sectors
- Interviews or focus groups with respondents providing contact details
Thank you to everyone who took part in the survey

Thanks too to Jon Walker (Moors for the Future Partnership) and Jonathan Aylen (Manchester Business School) for steering the project

A shorter version was presented at Wildfire 2011, Buxton, 14-15 Sep and is available from http://www.ruraldevelopment.org.uk/wildfire-conference