



# **The Muirburn Code Review**

## **Report from the Critique Phase**

### **INTRODUCTION**

#### **1 The Review Process**

- 1.1 The review of the Muirburn Code aims to ensure that a revised Code provides effective and up to date best practice guidance for well-managed burning.
- 1.2 The review process has been split into three phases: a critique phase, drafting the Muirburn Code, and publication of the revised Code with promotional activities.
- 1.3 The Muirburn Group of Scotland's Moorland Forum has been commissioned to conduct the Critique Phase.

#### **2 Programme**

- 2.1 The current intention is to aim for the introduction of a revised Code during the summer of 2015, in time for it to be used for the 2015-16 muirburn season that starts on 1<sup>st</sup> October.
- 2.2 The review process started in December 2012 and the capturing of information for the Critique Phase was completed at the end of March 2013.
- 2.3 In early April 2013, there was a spate of wildfires in north-west Scotland and, in view of the close relationship between muirburn and wildfire, a decision was taken to delay further work on the muirburn review to allow developments resulting from the analysis of the wildfires to be incorporated into the review. The interaction with wildfire is discussed further in in Section 4 of Appendix 3, page 3-2.

#### **3 Contents of this Report**

- 3.1 The approach adopted for the Critique Phase is described below and the options for taking the review process forward are then considered.
- 3.2 As expected, the discussion of muirburn has raised a whole range of issues, some of which are outside the scope of this review, and the discussion included views from those who favour muirburn and from others who prefer to avoid it.

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- 3.3 The Review process will require to be based on carefully balanced decisions that are based on evidence and experience. The strategic objectives for the revised Muirburn Code set by the Scottish Government are to provide guidance that will achieve the Government's objectives to:
  - 3.3.1 Provide support for well managed muirburn in appropriate places and at the correct time, in recognition of the wider socio-economic and environmental benefits it can generate;
  - 3.3.2 Minimise negative environmental impacts; and
  - 3.3.3 Minimise the risk of damage from wildfires.
- 3.4 A simple revision of the Code in its existing form might not be the best outcome from the review process. Novel approaches could help to:
  - 3.4.1 Reflect the needs of practitioners operating in the current environment;
  - 3.4.2 Incorporate existing policy changes and provide flexibility to adopt future developments;
  - 3.4.3 Embrace our improved knowledge of the impact, benefits and risks associated with management by fire; and
  - 3.4.4 Take advantage of new technology, particularly in relation to methods of fire management and communication between relevant parties, including: government, practitioners, and other organisations.

## **THE CRITIQUE PHASE**

### **4 Purpose**

- 4.1 The purpose of the Critique Phase was to seek the views of organisations and individuals with an interest in muirburn, and it aimed to provide recommendations for the conduct of the main review of the Code.

### **5 Critique Questionnaire**

- 5.1 An invitation to contribute to the Critique Phase was circulated to selected organisations and individuals. The invitation is at Enclosure 1 and this was issued with a deadline for responses of 8<sup>th</sup> March 2013.
- 5.2 The aim of the invitation was to encourage respondents to think round the issues and not just to answer a set number of questions. As hoped for, this exercise produced responses that covered a wide range of issues.
- 5.3 Twenty responses were received and a list of those who responded is at Appendix 1. A summary of the feedback received is at Appendix 2.

### **6 Discussion Meeting - 21 March 2013**

- 6.1 Members of the Muirburn Group, and others, were invited to attend a meeting in Dunblane on 21<sup>st</sup> March 2013. The summary of the feedback to the invitation was reviewed and the issues discussed have been fed into the recommendations included in this report.

6.2 Notes from this meeting are at Enclosure 2.

## **PROPOSALS FOR THE REVIEW PHASE**

### **7 Proposed Objectives for the Review**

- 7.1 Incorporate recent changes to legislation, and provide flexibility to incorporate future developments;
- 7.2 Reduce the environmental impact from prescribed burning and wildfire, safeguard the provision of ecosystem services, and the public benefits that accrue from them, and protect designated sites and sensitive areas of land;
- 7.3 Meet practitioners needs for maintaining open land in good, productive condition, and ensure that it sets out best practice guidance that is relevant to the full range of practitioners;
- 7.4 Improve knowledge about the benefits and the risks associated with the use of fire for management;
- 7.5 Incorporate new technology, including equipment and means of communication with practitioners, into the guidance included within the Muirburn Code;
- 7.6 Provide a link between wildfire and prescribed burning;
- 7.7 Develop a suite of Muirburn Information, that includes the Code, as a process that will continue as legislation, policy, practice and understanding changes; and
- 7.8 Establish the Muirburn Code as a portal to a range of relevant information.

### **8 Muirburn Information**

- 8.1 A single solution about how to address muirburn information did not emerge from the Critique Phase. This is not surprising!
- 8.2 In an attempt to incorporate as many different ideas and suggestions as possible, a proposed structure for the information is set out in Appendix 4: *Possible Structure of Muirburn Information*.
- 8.3 There will be a range of views about this, but this structure is proposed as a starting point for the development process. It will not be possible to address all the issues at once, and this is why it has been recommended that the review be seen as the start of a process.
- 8.4 In general, it is proposed that some printed output be retained, while most of the supporting information is available to view and download from the Internet.

- 8.5 It is proposed that there is a single, revised Muirburn Code that contains information applicable to all of Scotland. The Code should provide the information required by anyone intending to carry out muirburn or cutting operations. It should be a practitioner's guide.
- 8.6 The information contained in the Code should be supplemented by additional guidance that will be developed to cover specific issues or matters that are only relevant to some parts of the country.

## 9 Muirburn Code Issues

- 9.1 Discussion during the Critique Phase identified a large range of issues for consideration. The full list has been recorded in Appendix 2: *Summary of the Response from the Critique Phase*. Some of these issues have been further addressed in Appendix 3.
- 9.2 Appendix 4: *Possible Structure of Muirburn Information* sets out a proposal for how the different parts of the suite of Muirburn Information might relate to each other. A colour code has been applied to the issues listed in the summary diagram at the end of Appendix 4, to attach a priority to the different elements.
- 9.3 In summary, the following issues are recommended for inclusion in the first phase of the review process:

1	Draft revised Muirburn Code
2	Develop additional Guidance
2.1	Peatland and Burning
2.2	Muirburn in Crofting Counties
2.3	Heather beetle & winter dieback
2.4	Fire Groups
2.5	Management of Grassland
3	Promote revised code to practitioners and other interest groups
4	Public Consultation
5	Launch of the Code
6	Monitoring of take up

## 10 Promotion of the Revised Code

- 10.1 There are many possible options for promoting the revised Code. The management changes required to implement the measures in a revised Code may not be introduced quickly, or as the result of one promotion event in Central Scotland.
- 10.2 Detailed proposals for how to engage with practitioners effectively in all parts of Scotland will be developed as part of the Review, but options include: events, workshops and seminars, electronic briefings, webinars and video demonstrations.
- 10.3 There is support for a greater use of electronic communication and online resources.

- 10.4 During the Critique Phase, the concept of a muirburn ‘app’ was introduced, but it was pointed out that muirburn frequently takes place in areas with little or no mobile phone coverage and therefore the value of the ‘app’ in the field might be limited.

## **ADDITIONAL GUIDANCE**

### **11 Peatland and Burning**

- 11.1 The importance of the peatland areas of Scotland is being recognised increasingly and greater awareness is developing about the sensitivity of these areas to inappropriate management.
- 11.2 Bad burning practices can have a big impact on the ability of these areas to capture and store carbon.
- 11.3 Additional guidance is proposed to reflect the sensitive nature of these areas and to reflect the information in the National Peatland Plan that is under development.

### **12 Muirburn in Crofting Counties**

- 12.1 The crofting counties have different traditions for muirburn and cutting, and the Code needs to provide guidance that is relevant for the management of these important, and frequently sensitive, areas.
- 12.2 Some specialised guidance is envisaged that will be developed in conjunction with crofters and the organisations that operate in these parts of Scotland.

### **13 Heather beetle & winter dieback**

- 13.1 The best management technique to employ following damage to heather, by heather beetle or winter dieback, is uncertain but it is important to base any decision about what to do on the best evidence available.
- 13.2 Additional guidance is proposed to set out what is known about heather damaged in this way and the management options that are available.

### **14 Fire Groups**

- 14.1 Fire groups are seen as having two important roles:
- 14.1.1 Providing mutual support for the prescribed burning activities in the area covered by the fire group; and
  - 14.1.2 Providing a coordination function between land managers and the SFRS to respond to wildfire incidents.
- 14.2 The scope of the Fire Groups could be expanded to include management by cutting or burning to reduce fuel load. The interaction with grazing should also be considered as an important factor.

14.3 The wildfires in April 2013 also indicated that there might be benefit in establishing a system to allow specialised, private sector, fire fighting resources to assist the SFRS in areas where such facilities are not available.

14.4 The establishment of fire groups to cover all of Scotland should be endorsed as part of the Review.

## **15 Management of Grassland**

15.1 There is less information about the management of grassland by burning and cutting than other habitats. However, maintaining the biodiversity of these areas through management is important, especially as a result of the grazing management changes introduced by the amendments to the Common Agricultural Policy that has led to large reductions of stock numbers in some areas and/or a shift from domestic to wild grazing animals.

15.2 Initially, guidance may have to be based on the best evidence available and it may be necessary to recommend that extra research is carried out to improve the available evidence and thus the guidance.

15.3 Input from SRUC & JHI will be requested to assist with the development of the guidance.

## ADMINISTRATION

### 16 Project Management

16.1 The Muirburn Group (MBG) of the Moorland Forum should continue to provide the support for the Review process, but additional expertise should be added to the Group, as required.

16.2 The Group will report to the Scottish Government and SNH at agreed stages through the Chairman. It might be appropriate for SG & SNH to join some meetings or discussions with the MBG.

### 17 Timetable

17.1 A possible programme is presented in Table 1 below.

**Table 1: Muirburn Code Review – Provisional Programme**

Stage	Date
<b>Critique Phase</b>	
Submitted draft report from Critique Phase to SG	09 Aug 13
Submitted revised draft report	06 Jan 14
Submitted outline Muirburn Code to SG	13 Jan 14
Telecon SG & SNH – discuss draft report & Code	13 Feb 14
Submitted revised Critique Phase Report	4 Apr 14
Telecon SG & SNH – discuss draft report & Code	29 May 14
Circulate Critique Phase Report to Muirburn Group & others. Invite comments	13 Jun 14
Meeting with Muirburn Group	Jul 14
Review & revise report	
Submit final Critique Phase Report	31 Aug 14
<b>Muirburn Code Review</b>	
Agree scope of the Review	Jul - Sep 14
SG issue instructions for Review	
Draft revised Code & any agreed additional docs	
Submit drafts to SG	5 Jan 15
Activity to develop support for the revised Code	Jan - Mar 15
Revise draft Code & any agreed additional docs	Mar 15 - Apr 15
Target date to finalise documents	30-Apr-15
Public consultation	May - Jun 15
Incorporate feedback from consultation	Jul-15
Produce final version of Code & agreed docs	Aug-15
Launch / promotion events	Sep-15
Start of Muirburn Season	01-Oct-15

- 17.2 The requirements for public consultation need to be confirmed and it is possible that this may introduce a delay that could influence the proposed programme.
- 17.3 It may be possible for some of the steps outlined in the programme to occur concurrently and thus shorten the programme.

## **18 Funding**

- 18.1 The Scottish Government will commission the work from Scotland's Moorland Forum.
- 18.2 A very provisional budget has been drawn up for discussion with a view to providing an order of magnitude for the costs involved. This will need to be adapted to match changes introduced to the scope of work. Based on the assumptions made to produce the budget, the cost of the project amounts to about £39,000.
- 18.3 The use of Provisional Sums<sup>1</sup> is under consideration with SNH for other commissioned work, and it might be an approach that could be used for this work to allow for uncertainties within the budget.

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<sup>1</sup> A provisional sum is an allowance that is inserted into tender documents for a specific element of the work that is not yet defined in enough detail for tenderers to price. This, together with a brief description, allows tenderers to allow for the work within their overall tender price and within the project programme.

## RECOMMENDATIONS & CONCLUSIONS

### 19 Recommendations

- 19.1 It is recommended that a short, practitioner's guide, to be called the Muirburn Code, should be developed. This will provide an early tangible output from the review process.
- 19.2 The production of some Additional Guidance should take place as part of the first phase of work.
- 19.3 Other work that will support the development of an effective management system, using muirburn and cutting, has been identified. Ideally some of this work should be commissioned in parallel with the Review, for example:
  - 19.3.1 Development of a training and certification system;
  - 19.3.2 Development of a website and online resources; and
  - 19.3.3 A programme to identify and address research priorities.
- 19.4 These recommendations should be checked for compatibility with the Scottish Government's objectives.

### 20 Conclusions

- 20.1 Shortcomings with the current Muirburn Code have been identified (Appendix 3), and most importantly it is clear that practitioners do not respect the Code.
- 20.2 The Review needs to develop a Muirburn Code, that:
  - Is integrated with current legislation, regulation and policy;
  - Has flexibility to accommodate future developments;
  - Meets the requirements for protection of sensitive areas and ecosystem services;
  - Makes the connection to wildfire;
  - Considers alternative management techniques and a range of management objectives; and
  - Above all, is seen to be relevant to practitioners and all interest groups.
- 20.3 The presumption in favour of muirburn in all moorland areas has been challenged and in the light of improved understanding about the impact of fire on sensitive areas, it is right that the need for burning should be questioned.
- 20.4 However, there is a large body of experience that indicates that in many areas burning carried out to a high standard can be the best way of achieving specific management objectives, and consideration should always be given to cutting as an alternative to, or in support of, muirburn.
- 20.5 The revised Code should encourage an intelligent assessment of the best management options to use for a particular area of ground to match the conditions, protect ecosystem delivery and sensitive areas, and meet the management objectives.

- 20.6 An overarching objective for the review should be to ensure that a decision to burn, or to cut, is made against agreed criteria, and that the muirburn or cutting operation is then carried out to a high standard

**Simon Thorp**

Chairman

The Muirburn Group

Appendices:

1. List of responses to the Critique Phase questionnaire
2. Summary of the responses received to the Questionnaire
3. General issues from the Critique Phase
4. Possible Structure of Muirburn Information

Enclosures:

1. Critique Phase Invitation
2. Notes from the Discussion Meeting held on 21<sup>st</sup> March 2013

**LIST OF PEOPLE WHO SUBMITTED RESPONSES**

<b>Name</b>		<b>Organisation</b>
Mark	Aitken	SEPA
Simon	Allison	Crofting Commission
Tim	Baynes	Scottish Land & Estates Moorland Group
Zoe	Frogbrook	Scottish Water
Bruce	Wilson	SWT
Ronnie	Kippen	SGA
Richard	Luxmoore	National Trust for Scotland
Duncan	Orr-Ewing	RSPB Scotland
Colin	Shedden	BASC Scotland
Adam	Smith	Game & Wildlife Conservation Trust
Jamie	Stewart	Scottish Countryside Alliance
Malcolm	Younger	RICS / CKD Galbraith
Michael	Bruce	Firebreak Services Ltd
Graham	Sullivan	Scottish Natural Heritage
Scott	Hay	Highlands & Islands FRS
Gordon	Patterson	Forestry Commission Scotland
Matt	Davies	Researcher
Louise	Roger	Historic Scotland
Mark	Lazzeri	Isle of Harris Trust
Karen	MacRae	Scottish Crofting Foundation

## SUMMARY OF THE RESPONSE FROM THE CRITIQUE PHASE

<b>Review Process</b>	<p>Two respondents reported a concern that the Code did not need to be reviewed. It is likely that this view was linked to the view that the Code was not thought to serve a useful purpose. A common-sense approach was suggested as the best way of tackling muirburn.</p> <p>A view was also expressed that muirburn was at a critical stage. This was associated with views that muirburn should be seen as the exception not the norm.</p>
<b>Relevance</b>	
	Several respondents expressed a view that the current Code was not well targeted; it was thought to exclude those not burning for grouse management and the style of the Code was longwinded and cumbersome.
	There was general support for the Code to be better targeted and that it should achieve a better balance between different objectives for muirburn.
<b>Format of Code</b>	
Regulation	<p>There was support for a reduction in the amount of legal content.</p> <p>The Code should reflect all the recent changes introduced by the Wildlife &amp; Natural Environment (Scotland) Act 2011, including the procedure for obtaining an out-of-season licence.</p> <p>The occasions when permission is required to carry out muirburn close to a Scheduled Monument should be clarified and emphasised. The arrangements for the protection of designated sites need to be explained in the Code.</p> <p>The role of muirburn in GAEC should be explained.</p>
Additional guidance	<p>Several respondents commented that the Code could not contain all the information about muirburn and that the Code should be supported by a revised and updated Supplement.</p> <p>There was some support for additional guidance to provide a greater depth of information – following the Defra approach.</p>
Name	Several respondents questioned whether ‘The Muirburn Code’ was the correct title. It implied that all management took place by burning on heather moorland and ignored cutting, burning of other vegetation or burning in other areas (for example, in woodland).
Structure	<p>A common suggestion was that there should be separate sections, or even separate publications, to target different moorland types or the requirements of different parts of the country.</p> <p>Several respondents suggested that the Code should include case studies to demonstrate good and poor practice.</p> <p>Several respondents supported the suggestion that the Code should be a short and punchy, user-friendly document</p> <p>It would be important that the presentation of the Code was attractive.</p>

	<p>A balance needs to be struck between providing guidance and reference material.</p> <p>If the code was a live document available to download, it would be easy to update, but it was suggested that there would need to be some printed copies for circulation.</p>
Guidance card	The Guidance Card was popular with the respondents who commented on it and they thought it should be revised and retained.
Burning plan	<p>Two respondents favoured making the production of a burning plan a prerequisite for carrying out muirburn. It is already a requirement for burning under SRDP.</p> <p>Guidance about the production of a burning plan and templates should be made available - within the Code or as additional guidance, and possibly as a web-based resource.</p> <p>A burning plan should be useful to practitioners, not just a bureaucratic burden. The production of a burning plan should feed into a wider moorland management plan.</p>
Web-based	<p>Several respondents commented on the possible use of web-based resources to circulate the Code and other documents. It would be easier to revise documents but practitioners might not be aware of small changes.</p> <p>Mention was made of the possible development of a Muirburn App but it was noted that the lack of internet access in remote areas would reduce the value of this.</p> <p>One respondent suggested using video to get the information across.</p>
<b>Site Visits</b>	
	<p>Site visits could be incorporated as part of the review process.</p> <p>This would allow members of the Muirburn Group to look at particular issues on the ground before deciding how to address them in the Code.</p>
<b>Promotion of the New Code</b>	
	<p>Three respondents addressed this topic in detail.</p> <p>In view of the link between prescribed burning and the risk of damage from wildfires, it was suggested that the Code could be launched in April, which is usually the peak season for wildfires.</p> <p>Maximum use should be made of electronic promotion through member &amp; supporting organisations.</p> <p>Key organisations could be made responsible for promoting the Code in their sectors. For example: NFUS for farmers.</p> <p>A PR &amp; media campaign should be planned.</p>

<b>Specific Issues</b>	
Air quality	Should be a consideration for Muirburn planning
Biodiversity & ecosystem services (excluding water)	Insufficient reference in the current Code. More emphasis required. Reference to birds should include all moorland birds, not just birds of prey.
Peat management / Carbon loss / Climate change	The position regarding burning on blanket bog should be clarified. One respondent expressed concern about the impact of burning. Guidance should be to avoid bare peat. Practitioners should be made aware of the SG objective to maximise carbon storage.
Cutting	Many respondents commented that cutting should be included within the Code as a valid alternative to burning. Separate guidance would be required. Cutting might be the best approach in wetter conditions.
Fire behaviour	Seen as a gap in the current code. Reference to fire intensity and severity and the link to moisture content should be made. Guidance how fires behave in different circumstances recommended as essential knowledge for all involved with muirburn.
Fire groups	The Code should include a reference to the role and benefits of fire groups.
Fire management	Use of a variety of ignition patterns selected to match conditions has benefits. Inclusion in the Code was recommended. Advice about back-burning and firebreaks should be improved. A risk management approach could be adopted.
Fire size	There may be occasions when it would be appropriate to deviate from a standard fire size. Grass fires need a different approach.
Forestry	Burning next to forestry should not be ignored. There may be occasions when it should be encouraged. Greater ecotone <sup>2</sup> diversity is an objective for FCS.
Management of grass	Management of grass by burning or cutting should be included in the Code

<sup>2</sup> Ecotone definition: a transition area between two biomes. It is where two communities meet and integrate. It may be narrow or wide, and it may be local (the zone between a field and forest) or regional (the transition between forest and grassland ecosystems).

Heather management	The Code should highlight the danger of burning old, rank heather. It may not regenerate after a fire.
Neighbour notification	The Code should contain a template to guide the notification process.  Scottish Water would like to be included in the notification process if burning is to take place on a drinking water catchment.
Soil erosion & protection	One respondent expressed concern that burning gulleys resulted in erosion that had an impact on mammals and birds.  There was agreement that burning should not result in bare peat, as this would lead to erosion (loss of particulate organic carbon).  There is debate about the risk / benefits of burning up to watercourses.
SRDP	The revised Code should be flexible to allow it to incorporate new SRDP options announced as part of the review of CAP.  The muirburn guidance in a new SRDP should mirror the revised Code.
Training & Certification	Several respondents supported a move towards voluntary training and certification. The model adopted for snaring could be considered.
Water	Generally, there was support for embedding water quality issues in the Code, to acknowledge water provision as a key ecosystem service.  The concept of a buffer between watercourses and muirburn was raised due to the concern about a link between burning and water colour.  A risk assessment approach might be required. An alternative approach of banning muirburn on drinking water catchments was mentioned.  There are concerns relating to dissolved organic carbon (DOC) and dissolved organic phosphorus in water.
Wildfire	Mitigation measures should include protection of woodland regeneration with a firebreak.  Training and education was recommended.  Damage to small / scattered tree cover had been observed close to grouse moors.  A view was expressed that prescribed burning does not mitigate against wildfire and that prescribed burning raises the risk of wildfire.
<b>Research Issues</b>	
	Several issues were raised that require additional research. These issues are outside the scope of the Review and are not considered in detail.  The issues raised include: the impact of cutting, different heather regeneration after cutting or burning, the potential for cutting and burning to mitigate the impact of nitrogen deposition, fuel moisture modelling.

### GENERAL ISSUES FROM THE CRITIQUE PHASE

In addition to the discussion in the main report a range of other issues were raised during the Critique Phase. These have been summarised in this appendix under three headings:

- Issues Proposed for Exclusion from the Review
- Shortcomings of the Existing Code;
- Diverging Views

#### Issues Proposed for Exclusion from the First Phase of the Review

During the Critique Phase, several issues were raised that are thought to be beyond the scope of the Review.

This does not mean that these issues are not important, just that they cannot be sensibly accommodated within the first phase of the review process. This may be because of time and funding restrictions, the issues would require a different approach or different skills from the main review.

Where indicated, it is recommended that these issues could be addressed in parallel with the review of the Code.

#### 1 The Development of a Muirburn Handbook

1.1 See Section 3 of Appendix 4 (page 4-3) for details.

#### 2 Research issues (*develop in parallel to the Review*)

- This is thought to be beyond the scope of this review, but it is considered essential that research issues are addressed.
- Improving our knowledge and understanding of fire related issues would inform the development process for muirburn.
- A research programme should be integrated with work being planned by the Scottish Wildfire Forum (SWF).
- Research into other management techniques, and the interaction between cutting, burning and grazing, should also be considered.
- It has been suggested that input from fire researchers could cover the following topics:
  - Basic principles of fire behaviour, possibly including the development of fuel specific guides (e.g. heather, gorse, grass, scrub);
  - How to prepare a formal fire plan that could be designed to operate on a landscape scale;
  - How to implement the fire plan, to include alternative ignition strategies and how to control and extinguish fires; and
  - Health and safety considerations when burning.

#### 3 Training and certification (*develop in parallel to the Review*)

- During the critique phase discussion, there was general acceptance that some form of industry-led training and certification would be desirable.

- The training that has been established for snaring and deer stalking was referred to and these examples might form a template for a muirburn training regime.
- Different training requirements could be considered:
  - Basic training to provide information required by anyone involved in muirburn;
  - Intermediate training could cover more advanced issues, such as different ignition patterns and control options; and
  - An advanced level might be appropriate to cover wildfire management and integration with the Fire & Rescue Service.

#### 4 Wildfire issues (*develop in parallel to the Review*)

- The spate of wildfires that occurred in the north-west of Scotland in April 2013 coincided with the formation of the single Scottish Fire & Rescue Service (SFRS). The wildfires served to illustrate the inadequacy of the current arrangements for fighting wildfires to the new FRS, especially when they occur across a whole region.
- The SFRS is working to reinstate the work of the SWF, which had paused while the SFRS was formed. This is building on the lessons learned from the wildfires in April 2013.
- Traditionally, wildfire and muirburn (or prescribed burning) have been seen as separate issues.
- The Scottish Wildfire Forum (SWF) has been working to develop an understanding of how wildfire and muirburn are inter-related.
- Muirburn has a role to play in reducing fuel load and creating firebreaks that provide an opportunity to stop the fire, provide access for fire fighting equipment and offer protection for high value areas, features or property.
- Other management techniques, such as cutting and grazing, also have a role to play and need to be integrated into fire plans.
- Although not part of the Muirburn Code Review, there is an urgent need to improve the level of planning for wildfire, and muirburn should be an important part of this.
- It is recommended that close links should be developed and maintained with the SWF and the development of wildfire planning.
- The Scottish Wildfire Forum is likely to address:
  - Recording the location and extent of wildfires
  - Ignition sources of wildfires

#### 5 Debate about whether muirburn should be banned

- Some contributors to the critique phase raised this as a concern.

#### 6 Impact of climate change

- This underwrites all discussion about fire and its management, but it is beyond the scope of the proposed review.

#### 7 Effects of decline in hill farming activity

- This is an important issue as reduced stocking is likely to have a significant impact on fuel load and the risk of damaging wildfire.
- Also, less farming and crofting activity means that there are less people to carry out other management work.

## **Shortcomings of the Existing Code**

- 1 The Code does not take into account different objectives for muirburn and it is now out of date in many areas.
- 2 There is a lack of respect for the existing Code and it is not seen to be relevant to large parts of Scotland.
- 3 The objectives for the Code are muddled and the target audience is not clear. The two existing publications (the Muirburn Code and the Supplement) do not meet the requirements of the range of different audiences.
- 4 There is too much emphasis on legal issues and offences and insufficient reference to the benefits that can accrue from well-executed muirburn.
- 5 There is not enough emphasis on burning for agricultural purposes.
- 6 The Code is not relevant to current legislation (Wildlife & Natural Environment (Scotland) Act 2011, Good Agricultural and Environmental Condition etc.) and it does not reflect government policy on ecosystem services.
- 7 There is insufficient advice about burning on protected sites.
- 8 The ability to use cutting to assist, or even replace, muirburn is not given adequate coverage.
- 9 The use of muirburn to reduce the risk of wildfire damage should be given more emphasis.
- 10 There is no reference to the management of grass or scrub by fire.
- 11 The presentation could be improved with better photography to give improved access to the key messages.

## Diverging Views

This section sets out some areas where differences of opinion were highlighted during the Critique Phase that will need to be addressed as part of the Review process.

- 1 Value of muirburn over cutting
  - In view of the problems with muirburn and the associated risks, views were expressed that management of vegetation by cutting was the only legitimate option.
- 2 Scale of muirburn
  - The approach in crofting counties and within deer forests tends to be to burn large areas.
  - Grouse moor managers are content to burn smaller areas, which is more labour intensive and easier to achieve in areas where there is a history small-scale muirburn.
  - The question of whether it is better to burn large than not to burn at all will need to be addressed.
- 3 Flexibility in the approach to muirburn may be required to engage with practitioners in areas where traditional burning practices have not been on a small scale
  - Is this possible under the current legislation / regulation?
  - The cultural change to adopt different standards for muirburn will not happen quickly.
- 4 In view of the sensitivity about burning on water catchments, due to the risk of increasing colour in the water, there is a view that burning should not take place in these areas.
- 5 There are concerns about burning on peatland for several reasons:
  - Creation of bare peat that increases problems associated with erosion,
  - The risk of erosion to gulleys following muirburn.
  - Damage to sphagnum mosses that are the principal carbon capture mechanism, and
  - The potential to lose carbon stocks.
- 6 How realistic are the claims that muirburn can mitigate the risks of damaging wildfire?
- 7 There may be some resistance to the introduction of a requirement for qualification, however this is pitched.

## POSSIBLE STRUCTURE OF MUIRBURN INFORMATION

### 1 Overview

- 1.1 The Code should embrace a tiered range of guidance consisting of:
  - The Muirburn Code
  - The Muirburn Handbook
  - Additional Guidance
  - Muirburn Dossier
- 1.2 See the block diagram below for a summary of this possible structure.
- 1.3 Consideration could be given to adding a strapline to the Muirburn Code title to reflect the Code's relevance to management of vegetation species other than heather, and the use of a range of management techniques.

### 2 The Muirburn Code

- 2.1 It has been proposed that the review process should start with the preparation of a revised Muirburn Code. This would include most, if not all, of the issues coloured green in the block diagram below. The rest of the Review process could be developed around a revised Code.
- 2.2 The Code should aim to provide the information required by someone preparing to carry out muirburn. This level of knowledge would be provided by the proposed basic training.
- 2.3 To fulfil its role as a practitioner's guide, the Code could incorporate the former Guidance Card.
- 2.4 The Code should both summarise important information, and provide signposts to supporting and more detailed information.
- 2.5 The Code is likely to contain information that does not change frequently and therefore printed copies would not need to be revised often.
- 2.6 Format: printed & online

### 3 Muirburn Handbook

- 3.1 This is envisaged as a development of the existing Supplement to the Muirburn Code.
- 3.2 The development of this handbook is not intended to be part of the current review, but it is anticipated that the review will highlight the need for more technical information that this document would contain.

3.3 The contents of the Handbook, which would include issues such as: fire behaviour, fire modelling, fire danger rating, would be covered by the proposed advanced training.

3.4 Format: Looseleaf and online.

#### **4 Additional Muirburn Guidance**

4.1 This would cover guidance that relates to a specific area or to a particular issue.

4.2 The guidance could also cover time sensitive information that could be updated when required, independently of the Code.

4.3 This guidance could be presented as stand-alone documents but they would be referenced from the Muirburn Code.

4.4 Format: online only.

#### **5 Muirburn Dossier**

5.1 The dossier would contain additional muirburn guidance and information, which might include:

5.1.1 Case studies of good and poor practice;

5.1.2 A burning plan template and worked examples;

5.1.3 Templates for notifying neighbours of the intention to carry out muirburn; and

5.1.4 Information about out of season licencing, an application form and worked examples.

5.2 Format: online only.

## Possible Structure for the Revised Muirburn Code

