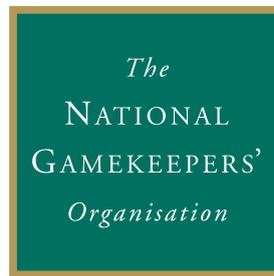


The Heather and Grass Burning Code 2007

Best Practice Guide 3: Identifying Sensitive Areas





Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London
SW1P 3JR
www.defra.gov.uk

© Crown Copyright May 2008

Copyright in the typographical arrangement and design rests with the Crown.

This publication (excluding the logo) may be reproduced free of charge in any format or medium provided that it is reproduced accurately and not only used in a misleading context. The material must be acknowledged as Crown copyright with the title and source of the publication specified.

Further copies of this publication are available from:

Defra Publications
Admail 600
London
SW1A SXX
Tel: 08459 556000

This document is also available on the Defra website.

Published by the Department for Environment, Food and Rural Affairs. Printed in the UK, July 2007 on recycled paper containing 80% post-consumer waste and 20% Totally Chlorine Free virgin pulp.

Product Code: PB13070

Identifying Sensitive Areas

Purpose of Guide

1. The Heather and Grass Burning Regulations were updated in 2007 to cover the basic legal requirements that burners should meet. An updated Heather and Grass Burning Code was also launched, aiming to describe a standard of good practice and to raise awareness of the relevant laws, helping burners to burn safely and in ways which can benefit the environment.
2. Pages 6 and 7 of the Heather and Grass Burning Code 2007 list categories of sensitive areas upon which there should be a strong presumption against burning. This guide aims to help burners identify these areas and understand the risks posed by burning. It should be used in conjunction with the Code when drawing up a burning plan.

Woodland, woodland edges and scrub

3. Broadleaved and coniferous woodlands, and scrub and small trees such as birch, ash, hawthorn and willow, are habitats that occur throughout the uplands and on lowland heathlands and grasslands in England (Figure 1). Fire is an inappropriate woodland and scrub management tool, and the spread of moorland and lowland fires into these habitats is likely to be very damaging.



Robert Goodison, Natural England

Figure 1 Woodland and lowland heathland in close proximity

Identifying Sensitive Areas

4. Juniper scrub (Figure 2) is a rare and declining habitat in England. Juniper is a slow growing and extremely fire-sensitive species and it will not re-sprout from its base after burning.



Robert Goodison, Natural England

Figure 2 Juniper scrub, a rare and fire-sensitive habitat in the English uplands

5. Scrub can also consist of gorse and broom (Figure 3). These habitats are exceptions to the rule and burning is practised, particularly in south-west England, as a management aid. These species of scrub are adapted to fire and will resprout from the base.



Tom Holland, Natural England

Figure 3 Broom scrub

Peat bog and wet heathland

6. This category comprises a range of sensitive mire habitats. Some are extensive, including blanket bog, wet heath, raised bog and valley bog or mire. Others, such as springs, flushes and pools, occur within more extensive habitat types.

7. Blanket bog occurs where peat develops over large, relatively flat expanses of the uplands, effectively blanketing them. Wet heath, raised and valley bogs can occur in both the uplands and lowlands. Wet heath develops where drainage is impeded often on shallow peat. Raised bog develops where plants die, consolidate and stack up as peat above the groundwater level. Valley bog often develops in waterlogged valley bottoms.

8. The composition of these habitats ranges from being dominated largely by lichens and bog-mosses (*Sphagnum* species), through a mixture of grasses and sedges (such as deergrass and cottongrass) and dwarf shrubs (such as bilberry, crowberry and cross-leaved heath), to being dominated by heather in drier or drained areas (Figure 4).



Robert Goodison, Natural England

Figure 4 Blanket bog illustrating great variation in composition, consisting of lichens, mosses, grasses, and patches of dwarf shrubs

9. There should be a strong presumption against burning these habitats for the following reasons:
- The nutrient poor and waterlogged habitats generate stable conditions, thus little or no management is often needed.
 - They often contain a high level of structural diversity (which is also very important for biodiversity) so there may be little benefit in burning them.
 - Repeated burning can result in a decline of fire-sensitive species such as bog-mosses leading to a dominance of purple moor-grass and heather.
 - The risk of peat exposure and damage is high. This may lead to drying of peat, the release of carbon, and increased erosion and surface runoff. Considerable damage can occur to the peat soils.

Identifying Sensitive Areas

10. Natural England can advise on any exceptional situations where burning these habitats might be considered and can advise on potential rotations and prescriptions to minimise the risk of damage.

11. The other habitats in this category are springs, flushes and pools (Figure 5). These occur within other more extensive habitats in both the uplands and lowlands. They often contain specialist mosses, higher plants, invertebrates and amphibians which are especially sensitive to burning.



Robert Goodison, Natural England



John Barrett, Natural England

Figure 5 A pool (a) and moss dominated flush (b) within heather-dominated blanket bog in the uplands

Areas where there is soil erosion

12. Soil erosion can occur naturally but is most commonly associated with human activities in the uplands and lowlands. Common examples in the uplands are peat hagsgs and erosion gullies (Figure 6). Burning exposed soil, or vegetation extending into it, can exacerbate soil erosion even further. Burning into peat may ignite the peat, creating a high risk of a wildfire.



Robert Goodison, Natural England



John Barrett, Natural England

Figure 6 Peat hags (a) and an erosion gully (b) in the uplands

Identifying Sensitive Areas

Areas where the soil is very thin

13. These areas are defined in the Code as having “less than 5 cm (2 in) of soil over underlying rock”. They occur throughout the uplands and lowlands, both naturally and where human activities have caused extensive soil erosion. They are often easily identified by the presence of protruding bedrock (Figure 7). Thin soils in more natural situations are often rich in slow growing and fire sensitive ferns, vascular plants, bryophytes and lichens. The risk of soil exposure and erosion is very high. Conditions are frequently too dry for burning as the soil drains very quickly.



Robert Goodison, Natural England

Figure 7 An area of thin soil characterised by protruding bedrock. Burning this area would create a high risk of soil exposure and erosion

Steep hillsides and gullies

14. These areas are defined in the Code as "slopes steeper than 1 in 2, or 1 in 3 on blanket mire or wet heath". They are common features of upland England (Figure 8), less so in lowland heathland and grassland. Fires take longer to spread on steep slopes, resulting in a hot and slow fire that damages the moss layer and impedes regeneration, and may be at greater risk of erosion. They are also difficult to control, and can widen as they progress uphill. Steep slopes on valley sides can also support woodland and scrub, and can also provide damper and cooler conditions, especially on north-facing slopes. They can provide specialised growing conditions for a variety of plants, including mosses not found elsewhere on the moor or heath.



Robert Goodison, Natural England

Figure 8 Dry heath on slopes of different gradients in the uplands. The gentle slope on the right foreground of the photograph is safe to include in the burning rotation, whilst the slope on the left foreground is much too steep

Identifying Sensitive Areas

15. Gullies (Figure 9) are also common features of upland England. They can act like a chimney, greatly increasing the intensity and rate of spread of a fire.



Paul Horswill, Natural England

Figure 9 A gully in upland England

Mountain habitats

16. These habitats occur above the natural tree-line, which is usually around 600m above sea level in England. They have a prostrate structure and are often dominated by sedges, mosses and lichens (Figure 10). They are stable habitats due to the high altitude and harsh climate, and burning management should not be required. Regeneration from burning would take many years, and intense burns may permanently remove the vegetation.



Robert Goodison, Natural England

Figure 10 A close up of a mountain habitat above the natural tree-line, illustrating its prostrate structure, and consisting of cowberry, mountain cowberry, bilberry, viviparous fescue, alpine clubmoss and the moss *Racomitrium lanuginosum*

Areas with heavily grazed vegetation

17. A combination of burning and heavy grazing is detrimental to most habitat types. Heavy grazing is likely to impede regeneration following a burn. Heavy trampling can exacerbate or even initiate soil erosion. Burning existing heavily grazed vegetation may slow any recovery.

Identifying Sensitive Areas

Areas within 5 metres of watercourses

18. A range of natural (e.g. streams) and artificial (e.g. grips) watercourses occur throughout the uplands and on lowland heathlands and grasslands. More luxuriant growth can be found on their banksides, which can range from taller heather and bilberry, rushes and grasses through to scrub and small trees such as willow. Burning should stop within 5 metres of the watercourse to ensure the bankside vegetation remains intact. Bankside vegetation can be of ecological interest itself, and it provides shade and a food source for some aquatic invertebrates. It can also act as a 'buffer' for surface runoff, slowing the input of surface runoff into the watercourse, thus reducing the risk of flash flooding downstream. If bankside vegetation is removed completely, it can also lead to erosion and widening of the stream channel.

Areas particularly exposed to wind with severely wind-pruned vegetation

19. These areas typically occur on summits or ridges above 300m, but can occur on lower ground where wind is funnelled such as through a valley or pass, or on sites by the coast (where salt-spray can cause similar effects). The heather can sometimes have a paler and greyer colour, but more noticeably has a prostrate structure and wind-blasted shoot tips (Figure 12).

20. The vegetation is kept stable by the high winds, so burning should not be necessary. Recovery is likely to be very slow. The short vegetation also increases the risk of burning causing soil exposure and erosion.



Robert Goodison, Natural England

Figure 12 Heathland exposed to wind showing its characteristic prostrate structure, paler colour and wind-blasted shoot tips

Areas of late mature/degenerate heather (Figure 13)

21. This definition covers areas of heather that have not been burnt for many years. They may be rich in diversity including fire-sensitive species and they also provide nesting cover. These areas often contain a large variation in canopy height, so there may be little benefit in burning them. Regeneration can occur naturally through layering and seeding niches when the canopy opens up. Regeneration after burning however is likely to be poor as older heather bushes do not always regenerate from the stock. Burns can also be too hot due to the high volume of fuel.



Robert Goodison, Natural England

Figure 13 Degenerate heather showing leggy woody growth, some die-back and a moss understory

Further information

22. Information on burning, including electronic copies of the Regulations, the Code, and a range of best practice guides are available on Natural England's website at www.naturalengland.org.uk/planning/farming-wildlife/burning. This also gives contact details for Natural England's regional offices, which can be contacted to discuss burning. Hard copies of the above publications are available from:

Defra Publications
Admail 600
London
SW1A SXX
Tel: 08459 556000