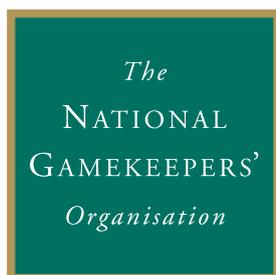


The Heather and Grass Burning Code 2007

Best Practice Guide 5:
Use of fire to
manage reedbeds
and saw-sedge





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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: PB13710

Use of fire to manage reedbeds and saw-sedge

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. This guide aims to provide additional best practice guidance on the use of fire to manage reedbeds and saw-sedge beds of commercial and wildlife interest.

Background

2. There are about 5,000ha of reed-dominated reedbeds in England with the greatest extent of this habitat found in the Broads, where reedbeds are found within a larger extent of fen habitat. Reedbeds comprise largely of the common reed (*Phragmites australis*) and are home to some rare and threatened wildlife particularly birds (e.g. bittern, marsh harrier and bearded tit). Reedbeds are also of importance for a number of nationally important non-avian species particularly invertebrates and higher plants and of course as a source of reed, which continues to be commercially harvested in parts of England. In some areas, particularly the Broads, areas of saw-sedge (*Cladium mariscus*) are also managed for commercial purposes. High priority is currently being given to halting and reversing the decline in the overall area of reedbed in the UK.

3. It is increasingly accepted that the commercial and wildlife interests of reedbeds are interdependent. The UK Biodiversity Action Plan (BAP) identifies a lack of or inappropriate management leading to drying out, scrub encroachment and succession to woodland as key factors affecting existing reedbeds. As a general policy, burning should not be used for the management of non-commercial reedbeds. If used in commercial beds, this should be primarily as a restoration tool.

Current status

4. Many reedbeds and sedge beds are notified as Sites of Special Scientific Interest, Wetlands of International Importance (Ramsar Convention) and as Special Protection Areas or Special Areas of Conservation (EC Birds and Habitats Directives). Please check with the appropriate authorities (e.g. Natural England on designated sites) before carrying out any management practices or activities within reedbeds that are afforded special protection, as consents may be required.

The use of fire as a management tool

5. A range of management practices is available to manage reedbeds (see Hawke & José 1996). This guidance note covers the use of fire only.

6. Burning is a traditional management practice, used in winter to remove both cut and standing reed, when it is dead and dry. Burning is used to remove unwanted, poor quality reed and litter, and is sometimes used to rehabilitate areas of reedbed, allowing them to be brought back into a rotational cutting regime. Burning can also increase early shoot emergence, assists the dominance of reed and encourages shoots to grow straight (Haslam 1969).

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7. In general, burning removes less litter than cutting and clearance and is a useful management tool, if applied wisely. Bonfire burning of unwanted vegetation generated through the harvesting of commercial sedge, may take place between May and September.

8. In the interests of birds prospecting for nest sites (e.g. bittern, bearded tit), it is recommended that the burning of **standing reed** is not carried out later than 31 March.

How does the use of fire affect wildlife?

9. Provided burning takes place during the right conditions and is carried out as a fast 'cool burn' with damp/wet ground conditions, a proportion of invertebrates and mammals will survive. Small burn areas ensure good recolonisation from local sources. Summer burning is similar to summer cutting, in that it acts as a catastrophic event for the invertebrates and small mammals that are caught up in it. Provided that the areas harvested (and the unwanted residues) are small in any given year and that the same 'catastrophic event' does not get repeated for the following two–three years, the evidence suggests that invertebrate populations recover. In winter, although many invertebrates may be in the litter layer, rather than on aerial parts, any invertebrates that winter on the stems/leaves will often be in a relatively dormant state and thus unable to escape.

10. Burning removes the 'above-ground' material in which many animals live, especially those that hibernate within dead stems. If the fire is hot, the litter layer and associated animals and plants may be affected. Burning creates temporary open areas within the reedbed similar to open areas created by cutting. These open areas are often used as feeding areas by waterbirds. There is some evidence that burning may benefit some notable plants and that burning leads to greater flowering of reed and enhanced seed production (Toorn & Mook 1982). Depending on the scale of burning, some invertebrates may recolonise rapidly from adjacent unburnt areas. Others may take longer to recolonise (Ditlhogo et al. 1992).

11. Burning may also be used to create a 'patchy' structure of old and new reeds within the reedbed, which is known to be beneficial to some reedbed birds.

General principles and techniques

12. The rationale for using fire is that if it is used properly, it is potentially a quick way to remove cut and standing reed, thereby reducing the rate of litter build up and drying out. Using fire also reduces the amount of trampling damage to the peat that would otherwise be caused by a cutting and removal restoration technique. Reed that has been uncut for two years or more or has never been cut is of little commercial value. Reed can either be burnt standing or once it has been cut. The Broads Authority encourage a 'two-way cut' where a brush-cutter or mower cuts the standing vegetation so that the rows of cut vegetation lean in towards each other (i.e. like a thatched roof). The reed is then burnt whilst still standing, and whilst there is a wet ground surface, thereby minimising damage to peat soils. Burning the old growth and litter is the only commercially feasible method of restoring/generating new growth of straight stems.

13. Reed can burn rapidly once alight. In the absence of good firebreaks and in windy conditions (above force 2) fires can easily get out of control. You should **never attempt to burn reed in-situ in the absence of someone with previous experience** and you are not advised to burn by yourself.

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How to burn standing reed

14. On most commercial reedbeds, reed unsuitable for thatch is burned off in winter and spring harvesting. It is important for wildlife to burn (and cut) in smaller blocks or strips rather than in one continuous block. The area burnt should be either a maximum of 5 ha or no greater than one-third of the total area being restored to ensure good survival rates of invertebrate species. All areas left unburnt are a refuge for invertebrates and a source to increase rates of recolonisation and nest sites for birds in unmanaged blocks. The period for recovery is longer on sites where reed has been unmanaged for several years.

15. Wet reedbeds, that have never been cut, may produce good quality reed one year after burning. Block-burning should only be used as a one off restoration method and thereafter regular cutting/mowing should be the preferred management.

- In view of the considerable height that flames may reach and the speed at which fire may move in standing reed, adjoining landowners should be informed of the intention to carry out a block-burn.
- Create a fire-break around the plot to be burnt. A fire-break should consist of a cleared area of a minimum width of three to four times the height of the standing reed. Breaks may be cut either using a reed harvester or brushcutter to gain better control of the fire. Reed-free ditches that are more than three metres wide may also sometimes be effectively used as firebreaks.
- Burn directly into the wind for greater control and a slower, but deeper burn.
- Control fire margins with beaters/water.
- Where more control desired, the reeds may be flattened (to reduce flame height) prior to burning.

16. The block-burning of sedge beds should be avoided.

How to burn cut reed (litter)

17. It is best to burn reed and scrub on site after cutting. This can be achieved by cutting reed to create a double row of thatch (as above). However, cuttings can be raked/gathered to a central point (preferably a raised area), in rows or a single heap.

18. Burning on a raised area minimises damage to peat soils and invertebrates. Where burning is not immediately possible, storage of material on a raised area allows material to dry out in the event of heavy rain and/or flooding.

19. On peat soils, cuttings should only be burnt on wet ground. The burning of reed litter in piles or ridges can continue after 31 March up to such time when the emerging reed shoots would be affected. When burning in piles, a preferred technique is to use a portable burning tray where practical, to prevent damage to peat and prevent localised nutrient enrichment (and consequent unwanted vegetation changes) by allowing removal of ash. Burning should not take place after the reed shoots (colts) begin to emerge. Once the colts are up, anything other than bonfire burning would be damaging.

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20. Sedge is harvested in the Broads mostly from May through to September and the litter is burnt in piles or ridges.

21. As with reed, sedge litter is burnt in piles or ridges. Firebreaks should consist of a cleared area of a minimum width of four times the height of the standing sedge. Extreme care should be exercised when burning sedge litter to avoid disturbance to nesting birds.

Further reading

22. The following publications also provide guidance and information on burning reedbeds and saw-sedge beds:

Ditlhogo, M.K.M., James, R., Laurence, B.R. & Sutherland, W.J. (1992) The effects of conservation management of reed beds. 1 The invertebrates. *J. Appl. Ecol.* **29**: 265-276.

Haslam, S.M. (1969) The development of shoots in *Phragmites communis*. *Trin. Annals of Botany* **33**: 695-709.

Hawke, C.J. & José, P.V. (1996) *Reedbed management for commercial and wildlife interests*. RSPB: Sandy.

Toorn, van der J. & Mook, J.H. (1982) The influence of environmental factors and management on stands of *Phragmites australis*: II Effects of burning, frost and insect damage on shoot density and shoot size. *J. Appl. Ecol.* **19**: 477-499.

Further information

23. 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:

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