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The Heather and Grass Burning Code 2007

Best Practice Guide 8: Identifying and managing heather beetle damage



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

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Identifying and managing heather beetle damage

Purpose of the Guide

1. The Heather and Grass Burning Regulations were updated in 2007. The Regulations were supported by an updated Heather and Grass Burning Code (the Code) that was launched at the same time and describes the best way to carry out burning safely and in ways that can benefit the environment.
2. This Best Practice Guide is a supplement to the Code and is intended to help land managers identify heather beetle and provide guidance about how to manage heather damaged by the beetle.

Introduction

3. Periodic outbreaks of heather beetle *Lochmaea suturalis* are a feature of heather dominated landscape. Damage to the heather plants can sometimes be quite severe and result in the plant turning a foxy-red colour in late July/August (Figure 1), after which the plant turns grey.



© Simon Thorp, The Heather Trust

Figure 1: Heather damaged by heather beetle showing the characteristic reddish colouration

4. A severe attack is likely to kill older plants, but while younger heather plants are less likely to be killed the damage may check their growth for a period of time. Younger heather plants often recover by producing new shoots from dormant buds and this can take place quickly. However, areas of old, degenerate heather are at much greater risk and can be lost due to the damage caused by the beetle. Inappropriate grazing after a beetle attack can increase the chances of losing heather cover and encourage its replacement by coarse grasses, particularly in the wetter, western regions of the UK.

5. There are concerns that the number and extent of heather beetle outbreaks is increasing. Landowners and land managers are asked to keep alert to the damage that this beetle can cause and to help with the recording of outbreaks.

6. Heather beetle primarily attacks common ling heather *Calluna vulgaris* although it has been reported to feed on other types of heather: bell heather *Erica cinerea* and cross-leaved heath *Erica tetralix*.

Identification of heather beetle

7. The adult beetles are small and compact beetles (6mm long by 2mm wide), and olive brown in colour, however the colour can vary from light yellow to almost black (Figure 2). The larvae resemble grubs with a well-developed head capsule and six legs. When fully grown they are 6mm long. The head and legs are black with the body a dirty cream with black spots (Figure 3).



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Figure 2: Adult heather beetle



© Simon Thorp, The Heather Trust

Figure 3: Heather beetle larva (grub)

Ecology and behaviour of Heather beetle

8. There is only one generation of adult beetles each year. Immature adults over-winter in damp litter, 25–50mm below the surface. The hibernation period is usually from November through to April, and adults are only active when the mean daily temperature is above 9°C. They fly to disperse in sunny, still weather conditions in April and May when the mean daily temperature is above 16°C, and even though they are poor fliers, they may appear in swarms.
9. The females are sexually mature when they hatch and commence egg laying, almost immediately. Egg laying can last for two months with the eggs taking up to four weeks to hatch, and each female can lay in the region of 700 eggs.
10. The peak emergence for larvae is in early July, and after hatching the larvae climb up the heather stems and feed on the heather leaflets. The larvae feed on the heather for approximately nine weeks, during which time they moult twice. The browning of heather associated with a beetle attack is rarely noticeable before July, and the larvae stop feeding around mid August and pupate in the damp litter layer.
11. Heather beetles are 'controlled' by a range of naturally occurring predators. The population of predators is thought to build in response to an increase in the numbers of heather beetle but it can take about three years before they have a significant impact on the beetle population.
12. For more detail see the review that is available from The Heather Trust's website¹.

1. http://www.heathertrust.co.uk/output/heather_beetle.asp

Burning and Heather beetle

13. Heather beetle cannot be controlled by fire, although burning has a role in aiding the recovery of the damaged heather. It is an apparently attractive idea to burn out the beetles as soon as an attack is observed, but there is no evidence to suggest that burning affected areas in the summer months limits the spread of heather beetle. There are concerns that damage from summer burning can very easily outweigh any damage caused by the beetle, and for this reason a licence to burn outside the legal burning period is unlikely to be given.

14. More research about burning and heather beetle is needed, but for the moment, in the event of a fire before the beetles hibernate for the winter, it is believed that the beetles and their larvae drop into the litter to let the fire pass them by unscathed.

15. During most of the heather burning season, the beetles are hibernating in the vegetation layer, which protects them from any fire. However, burning of damaged heather can have a positive effect on the recovery of heather post attack.

16. It is believed that the removal of the damaged plants helps reduce water loss from plants that are still alive and removal of the vegetation encourages the regeneration of heather plants from seed or from the stems of younger heather.

17. Large scale burning of damaged heather is not advocated. This is seen to be poor heather management and fire sizes should be kept within the guidance contained in the Code. Any wish to go beyond this guidance must be discussed with Natural England staff in advance of burning.

18. Natural England should be consulted where burning plans and rotations have been agreed (e.g. on SSSIs and/or in agri-environment agreements) if it is proposed to burn larger areas or a larger total area than previously planned.

19. Any required pre-notification procedures must be followed (e.g. with Natural England on SSSIs), and in such cases:

- a. Where the affected areas are small, e.g. patches less than 500 square metres (e.g. 10 × 50 m or about 15 × 35 m), then these can be burnt in addition to the areas agreed in the burning plan provided that the burns adhere to other aspects of the plan and the Heather and Grass Burning Code.
- b. Where the affected areas are larger, but below the size limit for a burn (specified in the plan and/or Code), then they should be burnt as part of the planned rotation in the burning plan unless it is agreed locally that they should be treated as additional because the specific areas involved do not accord with the overall plan.
- c. Where the outbreaks affect an area larger than the normal agreed burn size limit, it may be agreed locally with relevant parties that a larger area or areas can be burnt with the intent of diversifying the age structure (though it is unlikely that these will exceed the 10 ha maximum specified in the Regulations). Such cases will be site specific and considerations will include:
 - i. Whether the whole area or strips within it should be burnt. The strips may be wider than the normal maximum of 55 m referred to in the Code.
 - ii. Whether any mature heather along the edge of a large outbreak should be burnt as a pre-emptive measure if it is agreed that there is an advancing front of beetle damage. The new heather growth should have greater resilience to withstand future outbreaks in the area.

- iii. Whether the area should be added to the areas to be burnt in any previously agreed burning plan. Normally, it would be expected that the new area would be subsumed into the areas agreed over the period of the burning plan. There may, however, be exceptions, e.g. if a beetle outbreak area was geographically not within the planned areas to be burnt or if it is agreed that a larger area needs to be burnt to establish the basis of a new rotation.

Summary

20. The important points about heather beetle damage are:

- The first signs of heather beetle damage are colour change in the heather when a red/ginger colour is seen in July/August.
- Younger heather generally recovers without intervention.
- Mature and degenerate heather can be killed but where still alive burning within the burning season can encourage regrowth.
- Burning is thought to aid the recovery of the plants by reducing water loss from damaged plants and stimulating recovery from seed and basal buds.
- Damaged areas should be brought into the next burning cycle and damaged heather burnt in small areas.
- Summer burning is more likely to cause environmental damage, it has limited proven success, and it needs prior authorisation. It is unlikely to be authorised.

Further information

21. Further information about heather beetle is available and details will be provided by the local Natural England Staff on request.

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 <http://www.naturalengland.org.uk/ourwork/regulation/burning/default.aspx>. This also gives contact details for Natural England's regional offices, which can be contacted to discuss burning.



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