

Restoration of degraded *Molinia caerulea* dominated moorland in the Peak District National Park Eastern Moorlands, Derbyshire, England

Smith D. & Bird J.

Peak District National Park Authority, Aldern House, Baslow Road, Bakewell, Derbyshire DE45 1AE, UK

SUMMARY

An area dominated by purple moor grass *Molinia caerulea* was burnt, flail mowed, heather *Calluna vulgaris* seed was added, and then grazed. Heather seedlings were observed the next summer and grazing kept *Molinia* growth in check.

BACKGROUND

Degraded heather *Calluna vulgaris* moorland dominated by purple moor grass *Molinia caerulea* is found on the shallow peat areas of the Peak District Eastern Moorlands, particularly on the lower slopes of Big Moor. Historical factors such as past overgrazing, burning management, peat cutting and possible lime applications are thought to have caused the loss of heather from these areas. The Bucka Hill area of Big Moor was identified as an area particularly suitable for heather restoration due to the dominance of *Molinia* and as it was an easy area to exclude livestock being already enclosed on two sides by major roads. Only 1 km of additional fencing was required to create a livestock enclosure of 100 ha.

The aim of the project is to achieve restoration of heather moorland without the use of chemical herbicides to control *Molinia*. Various treatments aimed at decreasing the dominance of *Molinia* and increasing the cover of other moorland plants are being tried on different areas within the enclosure over a 5-year period.

ACTION

The project started in spring 2004 (9 March) with the burning of the *Molinia* grassland across half of the enclosure area. The aim of this was to reduce the vigour of *Molinia* and to remove the accumulated biomass of ungrazed *Molinia* tussocks. This treatment was followed

by flail mowing (17 March 2004) where practical in order to further suppress the *Molinia* and to remove the remains of the burnt tussocks. This work was done with a heavy duty machine which flailed down to the underlying peat where possible to create bare areas where the *Molinia* tussocks once were. In total, 14 ha of burnt moorland was flailed.

The final treatment in spring 2004 was of a 3 ha area that was seeded with brushed heather seed (collected the previous autumn from nearby Big Moor, and kept in a frost free store). This was applied on 6 May 2004 at a rate of approximately 40 kg/ha (a very high rate).

An additional 4.5 ha was flailed with a lighter machine in spring 2005 (March 14-16). This area was then re-seeded with treated (vernalised) heather seed at a rate of 40-60 kg/ha on 21 February and 9 March 2005.

The area was fenced to give the option of excluding grazing from the end of March 2005.

In 2005 the stock (ewes and lambs) were locked into the enclosure until 2 June 2005. After these were let out the gates were left open to allow free access to all grazing until mid June.

CONSEQUENCES

New heather seedlings were noticed on the 3.5 ha of re-seeded moor from mid June onwards,

all livestock was excluded at this point. Eighty one cattle (equivalent to 63 Livestock Units) were put back out to graze on 30 June 2005 in order to control grass growth. Sheep are now permanently excluded.

The net effect of mowing and flailing treatments was to create a lush spring growth of *Molinia* which was grazed hard by the sheep, cattle and red deer *Cervus elaphus* (a wild herd) on Big Moor. This grazing kept the growth of grass in check in 2004. An additional benefit of the treatments was that the area proved attractive to nesting lapwings *Vanellus vanellus* (possibly 2 pairs, when there were previously none – lapwings require shorter areas of vegetation in which to nest).

Currently grass growth is being suppressed adequately by grazing, monitoring is ongoing.

The end result will hopefully be a large area of heather-dominated moorland. Once restored a mixture of grazing animals will be allowed back into this area in order to manage it. An additional side effect of this work will be the replacement of low forage value *Molinia* sward with a more palatable one. This will help to address the current over-grazing problems on the other heather-dominated parts of Big Moor, directly addressing the single largest cause of unfavourable habitat status on these moors.