Black Grouse in northern England: stemming the decline

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**ABSTRACT** The range of Black Grouse *Tetrao tetrix* in England has contracted severely in recent decades. A full survey in 1998 estimated the English population at 773 displaying males. The Black Grouse Recovery Project, a partnership project between the Game Conservancy Trust, RSPB, English Nature, Ministry of Defence and Northumbrian Water, was set up in 1996 to help stem the decline. The implementation of project management prescriptions developed from our research has led to a small population increase, to 895 males by 2002. The project, funded until 2006, aims to consolidate numbers in the core population area, and then to expand the range into former haunts, particularly to the south, in the Yorkshire Dales.

Black Grouse *Tetrao tetrix* are found throughout most of northern Europe, extending from Britain in the west across northern Eurasia to eastern Siberia (Cramp & Simmons 1980). In most European countries, apart from those of Fennoscandia and Russia, range contraction and population decline had begun by the late nineteenth century. Black Grouse are now extinct in Denmark, Hungary and Luxembourg, as well as in many regions of Britain, Holland, Belgium, Germany, Poland, Czechoslovakia, the former Yugoslavia, and Romania. In general, the decline is due to a combination of factors, but the most important
ones are habitat loss, fragmentation and degradation, which have occurred as a result of changes in land use, particularly agricultural intensification.

In Britain, Black Grouse were widespread during the latter half of the nineteenth century and, in addition to their present distribution in Scotland, northern England and north Wales, they occurred on low-lying heathland in southern England, from Norfolk through Hampshire and Dorset to Cornwall, and throughout most of Wales (Gladstone 1924). By 1910, they were extinct in most southern counties, except for remnant populations on Exmoor and the Quantocks, which persisted into the 1960s (Sharrock 1976).

Although the decline had begun by the turn of the twentieth century, the rate of decline and range contraction in Britain has greatly accelerated during the last 50 years. In 1990, a survey estimated 25,000 (95% confidence limits 13,800-36,700) displaying males in Britain (Baines & Hudson 1995), but by 1996 this had fallen to just 6,500 (95% confidence limits 5,000-8,100) (Hancock et al. 1999).

With the loss of the last remaining Black Grouse in the Peak District in 1998, the English population is now restricted to the northern section of the Pennines, stretching from Wensleydale (North Yorkshire) to the Scottish Border (fig. 1.). A survey in 1998 found only 773 displaying males in England, although a repeat survey in 2002 showed an increase to 895 males. Survey data from North Wales in 2002 showed a range contraction but, more encouragingly, an increase in numbers from 131 males in 1997 to 243 males in 2002 (Lindley et al. 2003).

In northern England, Black Grouse are found in the transition zone between heather (mainly Calluna) moorland managed for Red Grouse Lagopus lagopus shooting and rough grazing managed by hill farmers for sheep and cattle. The major factors responsible for the decline of Black Grouse in northern England have been the loss of moorland fringe habitats (through either natural reversion to heather moorland, reseeding to intensively managed grassland and/or a reduction in the quality of remaining habitat through overgrazing by sheep) and the fragmentation of remaining habitat patches (Cramp & Simmons 1980; Baines 1994).

**Black Grouse requirements**

To support a population of Black Grouse an area needs to contain a mosaic of habitats that will provide resources throughout the year. These should contain Heather Calluna vulgaris (winter food); flower buds of cottongrass Eriophorum (for early spring food); the leaves, flowers and seeds of grasses and herbs (for summer food); the buds and berries of trees, such as Downy Birch Betula pubescens, Rowan Sorbus aucuparia and Hawthorn Crataegus monogyna (for autumn and winter food); plus insect-rich areas to provide food for small chicks. Our experience has shown that management for Black Grouse needs to be considered at three different scales: the brood scale, the lek scale and a wider, landscape scale.

(i) **Brood scale**

The home range of broods is small, typically 10-30 ha. The vegetation sward structure should be varied, with taller heather and rushes

![Fig. 1. The distribution of Black Grouse Tetrao tetrix in northern England in 2002.](image-url)
Juncus for nesting, shrubs and trees as escape cover from predators, and shorter vegetation for foraging and to allow chicks to dry out following rain. Favoured brood-rearing habitats have abundant invertebrates, notably larvae of sawflies (Tenthredinidae).

(ii) Lek scale
In good, continuous habitat, Black Grouse leks are approximately 2 km apart, and thus most birds attending the leks are found within 1 km of the lek. Suitable habitat needs to be available within this zone at the so-called lek scale. This represents an area of 300-500 ha, and should contain a mosaic of habitats to provide key foods: heath (heather), blanket bog or mire (cottongrass), rough grazing (sawfly larvae/insects), shrubs/trees (berries, buds, catkins in autumn/winter) and herb-rich meadows (leaves of herbs, seeds and buds).

(iii) Landscape or ‘population’ scale
Most young hens leave their natal areas (the median natal dispersal distance of females is about 10 km; Warren & Baines 2002), while cocks and adult hens hardly move at all. This implies that a group of birds centred on a lek may only be viable in the long term if they are within the dispersal range of young hens from neighbouring leks. This degree of connectivity among birds from neighbouring leks is essential to maintain genetic diversity and to prevent inbreeding through the genetic and physical fragmentation of social structure, gene pool and habitat.

Current demographic problems
Radio-telemetry studies have shown that the survival rate of adult Black Grouse in northern England is high (72%), in fact the highest recorded by any studies of Black Grouse in Europe (Warren & Baines 2002). Conversely, they breed less well here than in other areas, with only 1.2 chicks fledged per hen (Calladine et al. 2002) compared with 1.7 in Wales and 2.1 in the Scottish Highlands (Warren & Baines 2002). Weather conditions after hatching is one of the most important determinants of annual breeding success. Poor years are strongly correlated with high rainfall and low temperatures at the time the chicks hatch, in mid to late June. A combination of wet weather, together with clutch predation by Stoats Mustela erminea and Weasels M. nivalis and, relative to Scotland at least, few key insects for the young to feed on (Baines 1996), largely account for the low reproductive success encountered.

Black Grouse Species Action Plan
To help stop the decline of Black Grouse in the North Pennines, the Black Grouse Recovery Project was set up in 1996. This is a partnership project between the Game Conservancy Trust (GCT), the RSPB, English Nature, the Ministry of Defence and Northumbrian Water. The project employs a dedicated project officer (PW), who reports to a steering group of the project partners.

In 1999, Black Grouse became a UK Biodiversity Action Plan Priority Species (UK Biodi-

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102 & 103. Displaying male Black Grouse Tetrao tetrix at a lek in Finland. *David Tipling*/Windrush
versty Group 1999), for which the GCT and RSPB are joint lead partners for implementing the components of the plan. Within the framework of the Species Action Plan, the Recovery Project has the following objectives:

- To support and implement the Species Action Plan for Black Grouse in England
- To maintain the overall population size at a minimum of 800 displaying males (the 1998 estimate)
- To promote the recolonisation of those areas between currently isolated populations which were formerly occupied, by 2005
- To restore the species’ range to its 1988-91 extent (Gibbons et al. 1993), by 2008
- In the long term (20 years), to extend the range and increase population size

To achieve these objectives, the Project has a multi-faceted role, which includes providing free advice to landowners, farmers, government and conservation organisations on management for Black Grouse, monitoring the population and plugging gaps in our knowledge through the development of a research programme. Here, we report on two aspects, grazing and predator control, which our research has shown are particularly important for the management of Black Grouse populations.

**Grazing management**

During the first five years, work on the Project was concentrated on monitoring the effectiveness of management prescriptions to enhance Black Grouse breeding habitats on the moorland fringe, at the brood scale and at the lek scale. The key management prescription used was to reduce sheep grazing through entry into agri-environment schemes such as the Countryside Stewardship Scheme (operated by the Department for Environment, Farming and Rural Affairs) and English Nature’s Wildlife Enhancement Scheme. By 2000, within those parts of England occupied by Black Grouse, more than 40,152 ha were subject to grazing agreements within the Countryside Stewardship Scheme with another 29,000 ha in Environmentally Sensitive Area (ESA) agreements. Although there would be some overlap with these two schemes, 26,000 ha were also subject to Wildlife Enhance Scheme agreements. These schemes provide financial incentives to compensate farmers and landowners for the required reduction in stocking levels. One of the options of the Countryside Stewardship

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104. Female Black Grouse *Tetrao tetrix* feeding on willow *Salix* buds.
Scheme aims to increase heather cover to 40% by year five of the standard ten-year agreement. This can be achieved by restricting grazing during the first five years to only three months in the summer, when stock density should not exceed one sheep per hectare. We found that reducing sheep grazing (both in numbers and duration) resulted in an average 5% per year increase in numbers of lekking males compared with a continued rate of decline of 2% in control (non-agreement) areas where sheep grazing has remained the same (fig. 2), and 72% more chicks being reared per breeding female (Calladine et al. 2002).

After 5-7 years with restricted grazing, the sward can become too tall and thick resulting in poor chick survival and a decline in numbers once more. Consequently, we are currently undertaking an experiment to investigate whether cutting short strips in tall vegetation can create more optimal brood-rearing habitat, and hence maintain greater numbers of Black Grouse throughout the term of the ten-year Stewardship agreement.

**Predator management**

In northern England, about 90% of Black Grouse occur on the edge of managed grouse moors where gamekeepers are employed to manage heather and control key predators to maximise numbers of Red Grouse for sport shooting. Here, Black Grouse are regarded as indicators of high-quality upland landscape mosaics, which they share with Red Grouse, Grey Partridge *Perdix perdix*, European Golden Plover *Pluvialis apricaria*, Northern Lapwing *Vanellus vanellus*, Common Snipe *Gallinago gallinago*, Eurasian Curlew *Numenius arquata*, Common Redshank *Tringa totanus*, Sky Lark *Alauda arvensis* and Meadow Pipit *Anthus pratensis*.

This close association between Black Grouse and grouse moors strongly suggests that, at least within the open landscapes of the North Pennines, Black Grouse and maybe other ground-nesting birds need to be protected from generalist predators in order to thrive. In this area, we are not aware of any meaningful or long-term increases in the numbers of Black Grouse where predators are not routinely managed, irrespective of improvements in...
habitat management. Consequently, inclusion of appropriate predator control within our management prescriptions is imperative to success.

The future
To increase the population of Black Grouse in northern England substantially, the crucial first step is to increase breeding success, by optimising brood habitats and by controlling predators, particularly Stoats, rigorously. The latter should be achieved by employing and encouraging the actions of grouse-moor gamekeepers. At the same time, it is imperative to maintain the current high rates of adult survival.

Female Black Grouse disperse naturally, but in areas where the population is sparse they may travel beyond the current range boundary, where males do not occur. Consequently, since males are normally relatively sedentary, to expand the currently limited species range it may be necessary, once habitat elsewhere has been restored, to facilitate recolonisation by translocating some males. Following years of high breeding success, ‘surplus’ males in the core parts of the range could be moved, rather than being shot for sport. We are currently discussing with moor managers the feasibility of such an exchange mechanism.

References


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