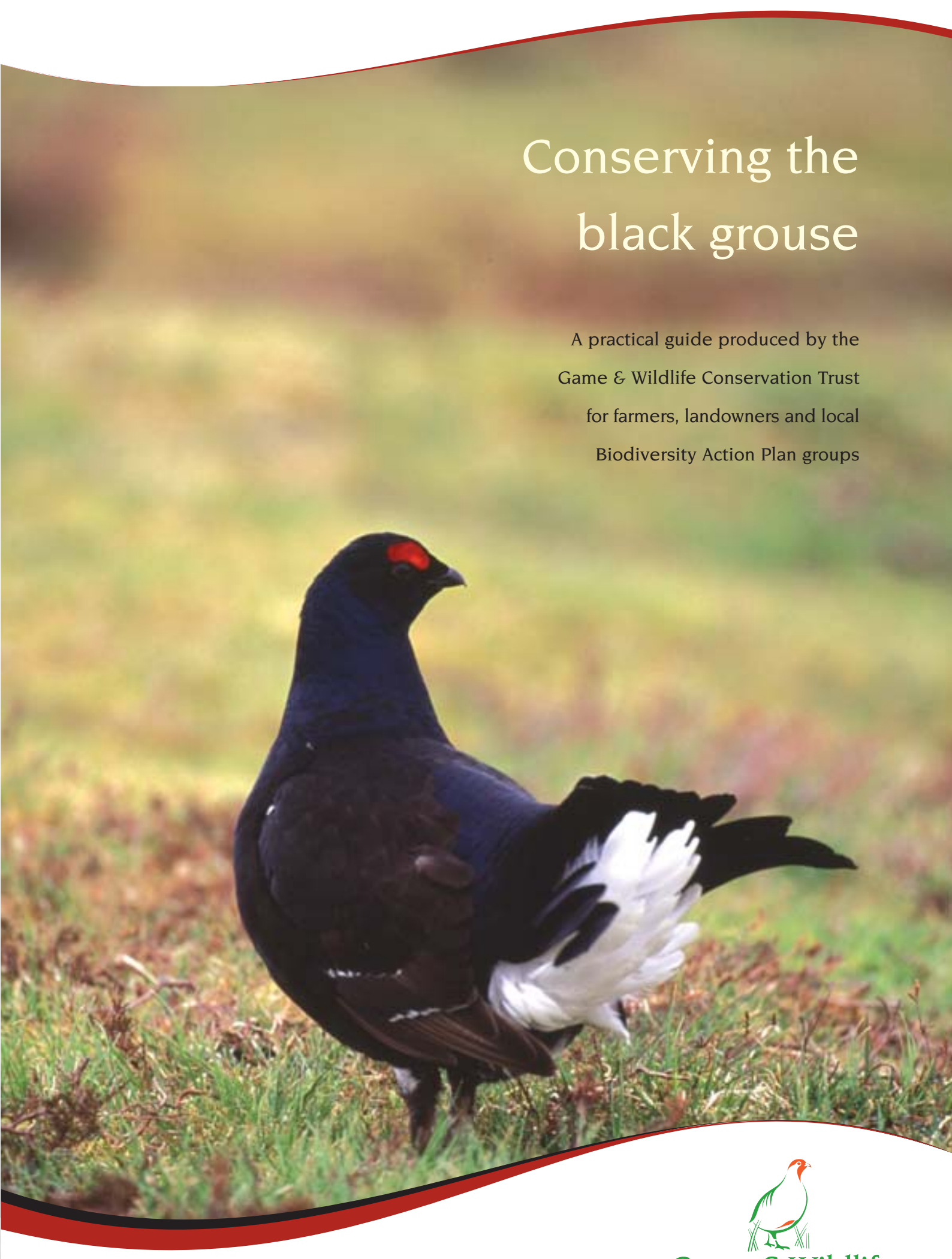
Conserving the black grouse

A practical guide produced by the Game & Wildlife Conservation Trust for farmers, landowners and local Biodiversity Action Plan groups



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A bird of the upland fringe

Pictures by Laurie Campbell

Black grouse nutrition

The staple foods of black grouse are heather and bilberry, but black grouse like buds, leaves, flowers, seeds, stems and even the spore capsules of mosses and twigs of several trees.

Spring

Black grouse favour cotton grass flower buds and larch buds. Other foods are herbs such as buttercup, sorrel and marigold found in unimproved pastures and hay meadows.

Summer

In the summer, black grouse go for flowers, fruits and seeds, rather than leaves. They like the seeds of grasses, rushes and sedges, and the flowers of herbs in wet bog flushes, herb-rich rough pastures and hay meadows. Bilberry and cowberry fruits are eaten by adults, but young chicks need insects to begin with.

Autumn and winter

In autumn the berries of bilberry, cowberry, crowberry and rowan, and seeds of grasses and heath rush are important. After snow fall, black grouse take to the trees, eating the buds and catkins of birch and hazel, and what's left of the berries.

Black grouse on a lek in the transition zone between forest and moorland. (Laurie Campbell)

Black grouse are birds of edge habitats. They like, in particular, the transition zone between northern forest and moorland heath. In this habitat they can shelter in the forest in the worst winter weather, feed on tree buds in spring and, in summer, they can nest on open ground and forage with their chicks among the grasses and heathland shrubs.

The black grouse has a spectacular communal breeding system. At dawn in spring, males (blackcock) congregate on traditional display grounds (referred to as a lek). Here they stake out small patches of ground on to which they entice females for mating.

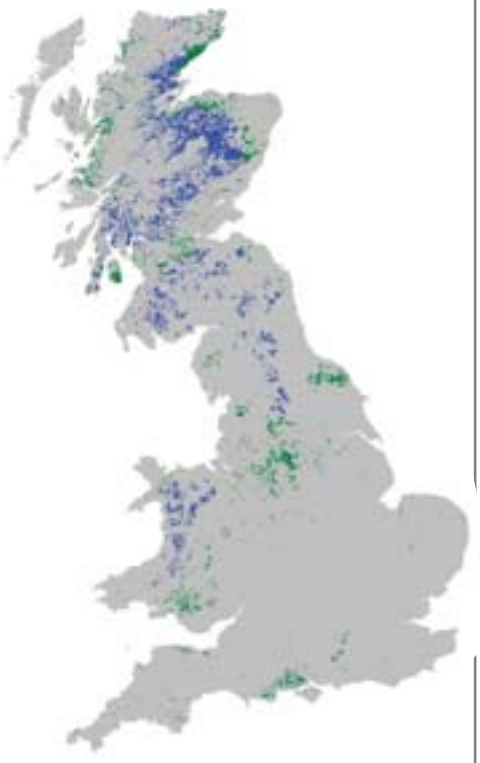
Females (greyhens) are cryptically coloured in mottle brown and lay their eggs in thick ground vegetation within a kilometre or so of the lek. After hatching they take their broods to feed among the tall grasses, rushes and heathland shrubs where they feed first on insects then buds, flowers and seeds.

Most black grouse chicks hatch in mid-June and they remain as a family covey until September. Young males tend to reside close to the home lek whereas females often disperse several kilometres to other areas of suitable habitat where there are other populations of black grouse.

Below: Greyhens are cryptically coloured. (Laurie Campbell)

The decline of black grouse

Black grouse habitat and distribution



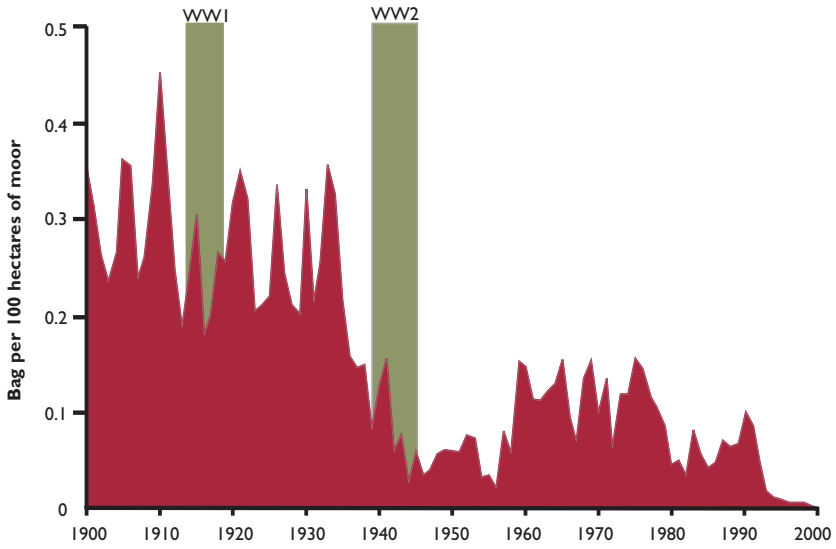
Suitable habitat (based on analysis of the Centre of Ecology and Hydrology land cover map) is shown as either blue, where black grouse are currently present, or green, where they are absent. Based on The New Atlas of Breeding Birds in Britain and Ireland: 1998-1991 *and recent information.*

A male black cock displaying on a lek. (Laurie Campbell)

The last estimate of black grouse numbers in Britain was 5,000 displaying males in 2005, with the population centred on a few key upland areas of Scotland, northern England and Wales. 150 years ago black grouse were more numerous and widespread and they could be found on many heaths of southern and eastern England. The decline and contraction of range seems to have begun about a century ago following gradual improvements in farming.

Most worrying is that in the late 1990s the black grouse was declining at a rate of some 8-10% per year with a geographical range that was continuing to contract.

Black grouse bags 1900-2000



Trend in the numbers of black grouse shot from British estates during the 20th century. Data from the Game & Wildlife Conservation Trust's National Gamebag Census key data set of 84 estates that have 80% complete records since 1900. Some 30+ of these places were shooting black grouse between the wars.

Today's continuing loss seems to stem from the following:

- ***Loss of habitat mosaic.*** Land-use used to be mixed. Black grouse favour a patchwork quilt of farmland adjacent to moor and forest, and they need a sweep of suitable countryside to sustain their population. Contiguous areas have been broken up by block forestry and intensive farming.
- ***Over-grazing.*** High densities of sheep and red deer eat out ground cover, thereby reducing the abundance of caterpillars that grouse chicks need.
- ***Changes in forestry.*** Black grouse like the ground cover in young plantations, but as these develop into solid conifer thickets they tend to leave. Forest edge used to melt into heathland through a transition of scattered trees; today's forests are hard edged.
- ***Increased mortality.*** Because they are now more common, crows foxes, stoats and some birds of prey cause a high annual loss. In addition, forest deer fences kill many birds.

The black grouse recovery plan

Black grouse need small pockets of scrubby broadleaf woodland as an alternative food resource in severe winters.

With a declining British population, in 1999 the black grouse was designated a Biodiversity Action Plan (BAP) species. As with other BAP species a set of targets were defined and actions proposed. The Game & Wildlife Conservation Trust and the RSPB are the joint lead partners responsible for the delivery of the plan.

The key objectives are to:

- Maintain the population of black grouse (at least at its 1996 level).
- Restore the range of black grouse to its 1988-91 extent.
- In the long term (20 years) increase the range of black grouse in the UK.
- In the long term (20 years) increase the population of the black grouse in the UK.
- Promote re-colonisation of formerly occupied areas between currently isolated populations.

Restoring black grouse populations in the UK is complex as birds frequent different habitat mosaics between regions. For example, in England they are a bird of the moorland fringe with few trees whereas in the Scottish Highlands they are found on the edges of woodland. These differences in habitat preferences between regions, combined with differing agri-environment and forestry grant schemes, means that the UK BAP is delivered through separate steering groups in England, Scotland and Wales.

Black grouse bred better where moorland fringe habitats were restored.

Case Study: North Pennines Black Grouse Recovery Project 1996-2010

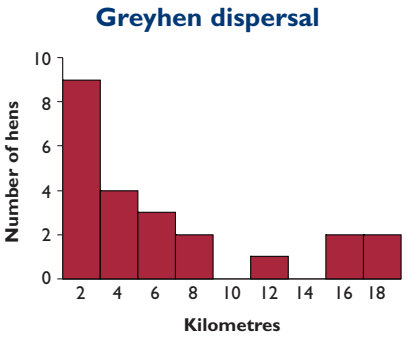
To deliver the BAP objectives in northern England, a full-time project officer was employed to give free black grouse management advice to landowners, farmers, the Government and conservation organisations; to monitor the population and plug gaps in our knowledge by developing a research programme. We demonstrated that by restoring moorland fringe habitats through sheep grazing reductions funded through agri-environment schemes, black grouse bred better, leading to 5% per year increases in displaying males. Widespread uptake of this management prescription was encouraged.

Numbers recovered from 773 cocks in 1998 to an estimated 1,200 in 2007, surpassing the BAP target of 1,000 cocks by 2010 ahead of schedule. With the decline stemmed, the project entered a third phase to deliver range expansion. A key component of this was a translocation trial whereby cocks from the core of the range were moved to the southern fringe of their range to establish new leks to attract dispersing hens. Although disrupted by poor breeding years in 2007 and 2008, the findings are encouraging with released cocks lekking and attracting hens that subsequently bred successfully.

Black grouse cocks were caught at night and transported directly to the release areas where they were released immediately.

The translocation trial, which aimed to deliver range expansion, was a success with released cocks lekking and attracting hens, that subsequently bred successfully.

Keys to recovery - restoring the landscape



Understanding the natural movements of black grouse is crucial for management. The graph shows dispersal movements of greyhens in their first year. This movement means that connectivity between black grouse leks is essential.

In contrast to females, blackcocks tend not to disperse from their home lek. Hence extending the species range may have to rely on re-introductions in future. Good black grouse country will have lek sites on average every two kilometres. (Laurie Campbell)

Heather moorland forms the central ribbon of habitat along which the important transition zones frequented by black grouse need to be conserved.

- Forestry plantations should have feathered edges where they abut moorland. Berried shrubs, and trees like birch, willow and rowan should be encouraged. Plantations themselves should be dissected with wide breaks in which shrubs can be encouraged.
- New transition zones can be created along sheltered burns and gills by allowing larger shrubs and dwarf birch to develop.
- Moor edge allotments should be managed to create a diverse sward of heather, bilberry, rush and grasses.
- In-bye fields along the lower moor edge need special attention. Wet rushy fields and unimproved hay meadows are important. Pastures should not be heavily stocked and some small arable plots can be used by black grouse.

Plans for a re-designed forest edge at Catterick Camp with black grouse in mind. (Illustrations by Jez Kalkowski)

Re-building the habitat

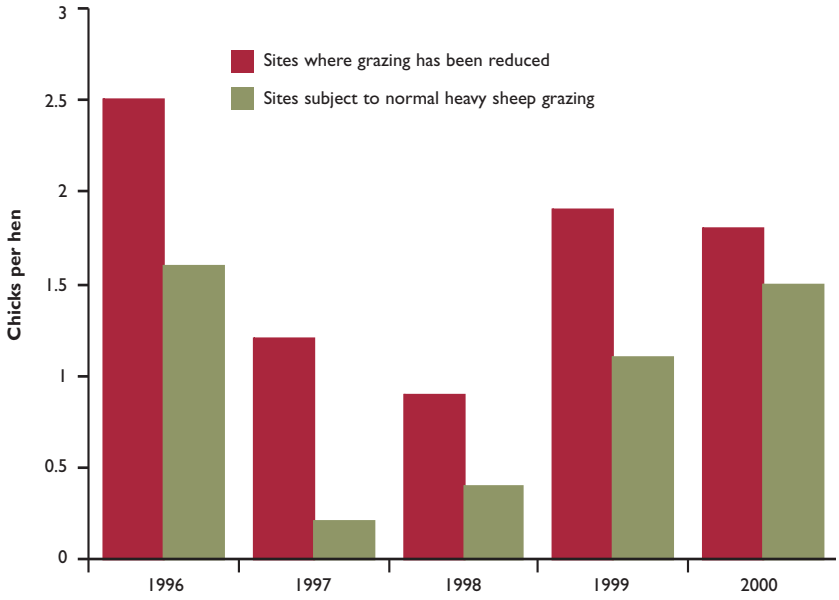
Issues of habitat quality

- ***Red deer:*** In the Scottish Highlands large numbers of browsing deer can deplete the forest shrub layer and deprive black grouse of cover and food.
- ***Sheep:*** Heavy grazing, especially along the lower edge of the moor, not only erodes the heather line, but it produces a short turf without the cover and food of tall grasses and herbs.
- ***Drainage:*** Bogs are ecological assets on any moor and should be retained as should in-bye rushy pastures.
- ***Meadow and pasture management:*** Black grouse like shoots, flowers, and seed heads, which are all abundant in old fashioned hay meadows. Fertiliser and herbicide turn a meadow into a thick grass sward unsuited to black grouse.
- ***Forestry:*** The early stages of a plantation are ideal for black grouse as the native heath flourishes in the absence of grazing stock. By the thicket stage the grouse are gone and fence lines increase mortality.
- ***Pheasants:*** Releasing hand-reared pheasants or redleg partridges along the moorland fringe, although a useful adjunct to shoot finances, could displace black grouse.

One of the main symptoms of our declining black grouse populations has been their poor breeding success and the number of chicks reaching maturity is insufficient to maintain numbers. Although poor summer weather can exacerbate this there are number of things that can be done to improve success.

- ***Improve hen nutrition:*** In the weeks before egg-laying, greyhens need food rich in protein and energy. They also need to lay down fat for incubation. Herbs from in-bye fields, flowering cotton grass, and the buds of larch, birch and willow should be available.
- ***Improve insect abundance:*** Young chicks foraging with the hen need to consume insects at a rapid rate. Caterpillars and sawfly larvae are important foods as are ants in pine forest fringe habitats in Scotland. Experiments show that restricting grazing may be the key to improving insect abundance in some areas.
- ***Provide cover***: Nesting hens need good shrubby ground cover for nest sites and with their young broods they like to forage among tall grass stems and low shrubs. This hides them from predators.
- ***Reduce predation pressure:*** Losses to predators can be crucial in some areas. Foxes, crows and stoats are significant predators in the breeding season and predator control may be appropriate.

Grazing pressure in relation to black grouse breeding success



Reducing grazing pressure improves breeding success. Numbers of chicks per hen at experimental sites in the North Pennines.

Increasing adult survival

How gamekeepers help black grouse

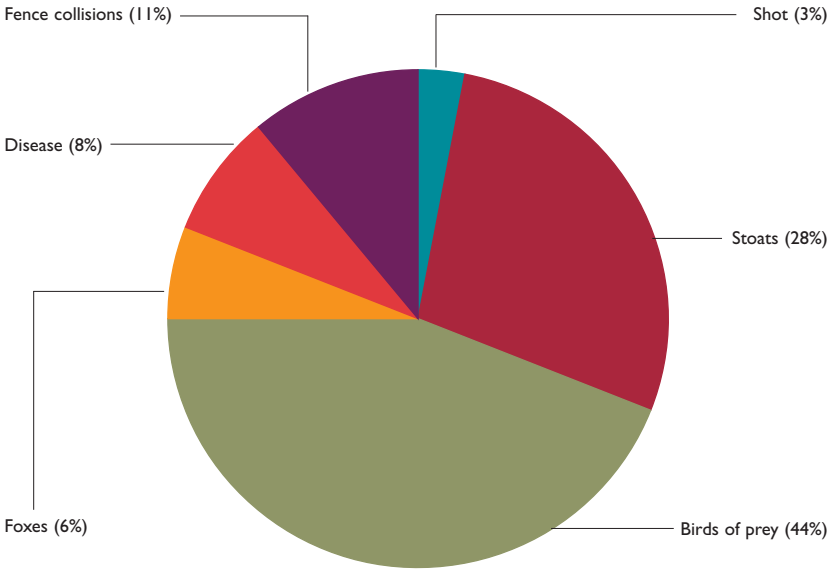
Gamekeepers aim to boost red grouse numbers by patchwork heather burning and controlling predation. Black grouse benefit from this. Losses to predators are most serious during the breeding season.

- ***Foxes:*** Rifle shooting at night is highly effective and, if all grouse moors in a region are vigilant, fox numbers can be kept down over a wide area. Snares, traps and flushing with dogs (up to two) to waiting guns are also used.
- ***Stoats:*** A network of tunnel traps is the key to stoat control.
- ***Crows:*** Cage traps - either small movable Larsen traps or big permanent crow cages - are used in the spring and early summer.
- ***Birds of prey:*** Raptors are protected and the keeper must try to reduce losses by enhancing habitat. Creating small native woodlands to provide better escape cover may improve grouse survival.

Predation

This needs to be approached in two ways. Where there is an existing game shooting interest, as on a grouse moor, black grouse survival will improve if the gamekeeper undertakes a systematic predator control programme for red grouse. Where a professional gamekeeper is not operating, predator control is much more problematic. A half hearted approach to predator control is usually a waste of time and most effort should go into habitat improvement.

Causes of black grouse mortality in northern England



The causes of 37 black grouse deaths in the Pennines, monitored by radio-tracking. Most of this population is on a well keepered grouse moor thus fence collisions and mortality to foxes are probably lower than they would be in the Scottish Highlands.

Right: Radio-tracking black grouse near a deer fence that has been marked to prevent birds from striking the wires. (Scottish Natural Heritage)

Codes, contacts and key publications

This guide has been produced in support of the Black Grouse Species Action Plan.

Game & Wildlife CONSERVATION TRUST

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Black grouse and shooting: a sportsman's code

Black grouse are legal quarry and may be shot in season (20 August to 10 December). But sustainable shooting is possible only where productivity is high.

Therefore do not shoot unless...

- Spring counts show that leks always have more than 15 males each year, and that overall there are two cocks for every 100 hectares of suitable habitat.
- August counts with dogs show that there are more than three young per hen at the end of summer, taking an average of at least 10 broods.
- Surveys on neighbouring ground show similar good numbers of birds.
- There is a programme of predation control and habitat improvement in place.

If you do shoot...

- Shoot only cocks - avoid greyhens.
- Don't shoot in September. Wait until October or November when cocks finish moulting.
- Make sure all guns can identify greyhens and don't confuse them with red grouse.
- Never shoot more than 15% of the spring stock of cock birds.
- Provide details of the shoot and the spring and autumn counts to the Game & Wildlife Conservation Trust.

Code for bird watchers

Lekking blackcock are a natural 'must see' for bird watchers. But...

- Never approach displaying birds on foot. Watch from a car parked over 100 metres away. Set up before daybreak and do not disturb them by opening doors or starting the engine.
- When walking in areas frequented by black grouse, keep to footpaths and keep dogs on leads.

Key scientific papers

Hancock, M, Baines, D, Gibbons, D, Etheridge, B & Shepherd, M (1999) The status of the black grouse in Britain. *Bird Study*, 46: 1-15.

Hudson, PJ & Baines, D (1995) The decline of the black grouse in Scotland and northern England. *Bird Study*, 42: 122-31

Baines, D (1996) The implications of grazing and predator management on the habitats and breeding success of black grouse *Tetrao tetrix*. *Journal of Applied Ecology*, 33: 54-62.

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