

Conserving the black grouse

A practical guide produced by
The Game Conservancy 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.

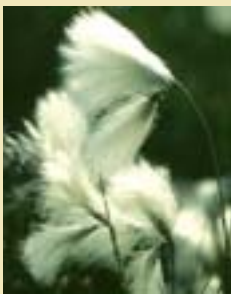
Spring

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.

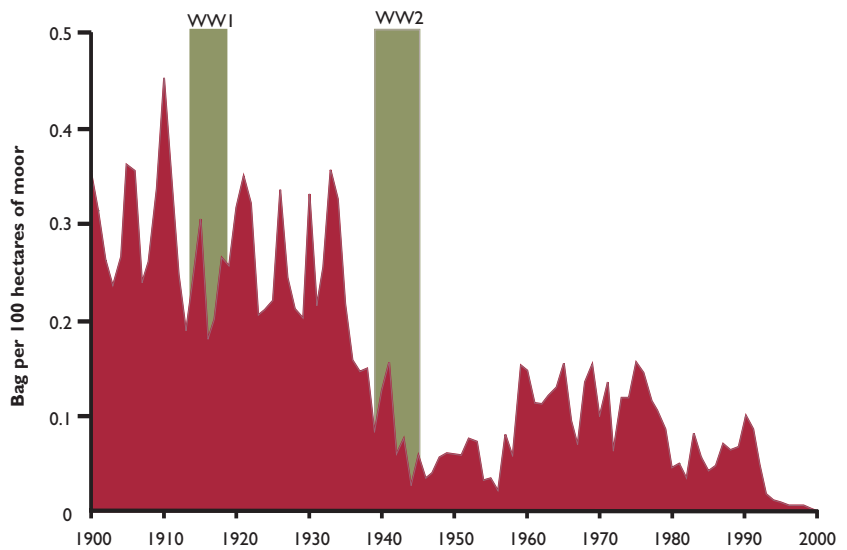


A male black cock displaying on a lek. (Laurie Campbell)

The last estimate of black grouse numbers in Britain was 6,500 displaying males in 1996, 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 Conservancy 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

RECOVERY PROJECTS

Each Recovery Project has a dedicated project officer who can advise estates, farmers and foresters on ways to enhance habitat and predator control to benefit black grouse and assist in finding grants to fund such work. Projects also organise training events for land managers and advisors who want to help black grouse and undertake lek and brood monitoring.

North Pennines: Phil Warren, The Gillett, Forest-in-Teesdale, Barnard Castle, Co Durham DL12 0HA
Tel: 01833 622208

Email: bgrecovery@gct.org.uk

This project is a partnership of The Game Conservancy Trust, English Nature, The Ministry of Defence, Northumbrian Water and the RSPB.

Wales: Patrick Lindley, Maes-y-Ffynnon, Penrhosgarnedd, Bangor, Gwynedd LL57 2DW
Tel: 01248 724476

Email: patrick.lindley@rspb.org.uk

This project is a partnership of the RSPB, the Countryside Council for Wales and Forestry Commission Cymru.

Dumfries and Galloway: Yvonne Boles, The Old School, Crossmichael, Kirkcudbrightshire DG7 3UW
Tel: 01556 670478

Email: yvonne.boles@rspb.org.uk

This project is a partnership of the RSPB and Scottish Natural Heritage, assisted by Forest Enterprise Scotland.

Argyll & Bute: Sandra Maclean, 9 Achnamara, Lochgilphead, Argyll PA31 8PU
Tel: 01546 850355
Email: sandra.maclean@forestrygsi.gov.uk
This project is a partnership of Forestry Commission Scotland, Scottish Natural Heritage, the RSPB and Scottish Power, supported by the Esmee Fairburn Foundation.

Northern Scotland: Isla Graham, Crubenmore Field Station, Newtonmore, Inverness PH20 1BE
Tel: 01540 673510.

Email: igraham@gct.org.uk

Chris Donald, Etive House, Beechwood Park, Inverness IV2 3BW
Tel: 01463 715000
Email: chris.donald@rspb.org.uk

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 are defined and actions proposed. The partnership for the black grouse programme is led by the RSPB and The Game Conservancy Trust.

The key objectives are:

- To restore the black grouse population to 1996 levels by 2006 and the range to 1988 levels by 2008.
- In the next 20 years extend the species range and population abundance. In particular fill gaps in the distribution by 2005.

In collaboration with corporate land owners, estate owners, and farmers, both The Game Conservancy Trust and the RSPB lead a series of special recovery projects.

CURRENT BLACK GROUSE RECOVERY INITIATIVES

The North Pennines has a population of about 850 males, an increase of 50 from 1998. A target of 900 males is set for this area. Adult survival is good (the area is well kept grouse moor) but productivity low. Experimental sites where grazing has been reduced show improved productivity and an increase in population.

Dumfries & Galloway: most of the birds are found in and around commercial forestry plantations. The population estimate in 1996 was 350 males, and the Recovery Project aims to increase this to 420 males by 2006.

Argyll & Bute: most black grouse are found in commercial forestry and the current population is being assessed so that key areas can be targeted for management.

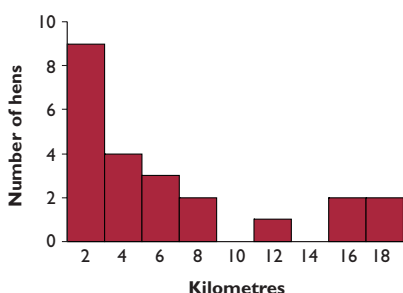
Wales: a survey in 2002 recorded 243 lekking males, an 85% increase on the 1997 population. This increase occurred principally in areas where forest and heather management was undertaken. The project aims to increase the numbers in these core areas to 270 males by 2006 and to reverse the contraction in range.

Moorland fringe - typical black grouse habitat. (Laurie Campbell)



Keys to recovery - restoring the landscape

Greyhen dispersal



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

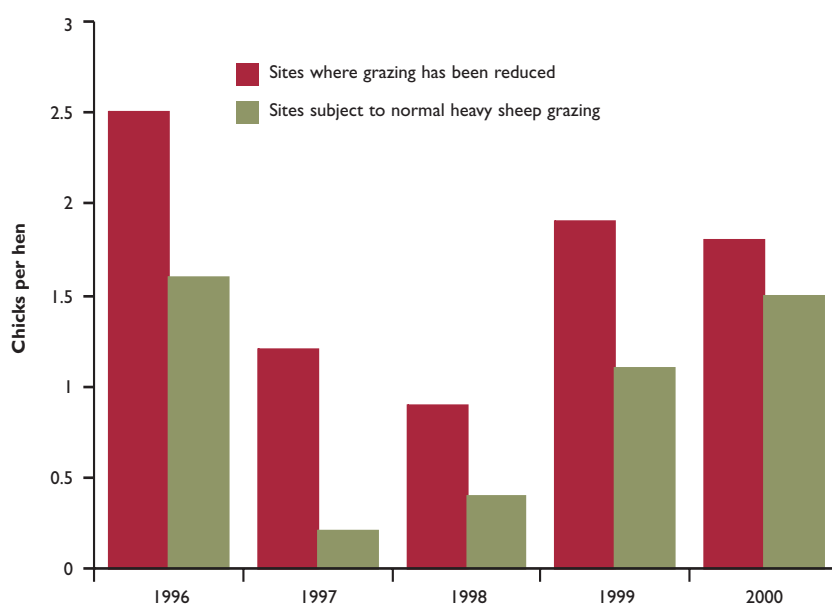
ISSUES OF HABITAT QUALITY

- **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

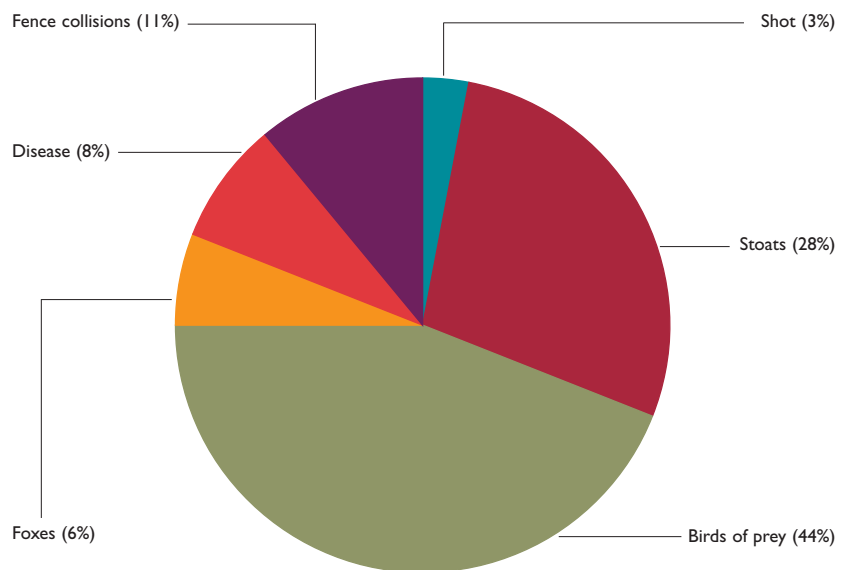
Gamekeepers aim to boost red grouse numbers by patchwork heather burning and controlling predation. Black grouse benefit from this. Losses to predators are most serious during the breeding season.

- **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 hunting with dogs (eg. gun packs) 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 kept 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

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The Game Conservancy Trust
Fordingbridge, Hampshire, SP6 1EF
Tel: 01425 651021
Email: stapper@gct.org.uk

www.gct.org.uk

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CONTACTS

The Game Conservancy Trust
The Gillet, Forest-in-Teesdale
Barnard Castle, County Durham
DL12 0HA
Tel: 01833 622208
pwarren@gct.org.uk

RSPB
Advisory Manager, Scotland
Dunedin House
25 Ravelston Terrace
Edinburgh EH4 3TP
Tel: 0131 311 6500
jack.fleming@rspb.org.uk

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 Conservancy 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.



Game Conservancy Limited's Advisory Service provides professional advice on all aspects of game management including black grouse.

For more information contact:
Liz Scott on 01425 651013