

# Black Grouse



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## Summary

- **Background** – formerly widespread across Britain, black grouse (*Tetrao tetrix*) suffered a reduction in numbers and range throughout the 20th century. More recently, the Scottish population declined by 29% between 1995/96 and 2005. Habitat degradation, largely caused by agricultural intensification and forest maturation, alongside low survival rates, contributed towards these losses.
- **Objectives** – the Species Action Framework (SAF) black grouse project focused on stemming the decline in numbers and range and on increasing the size and range of the Scottish population.
- **Approach** – SAF funding was used to deliver black grouse projects throughout Scotland, in partnership with a range of contributing partners: Royal Society for the Protection of Birds (RSPB), Game and Wildlife Conservation Trust (GWCT), Forestry Commission Scotland (FCS), Scottish Power, and GDF Suez.
- **Achievements** – awareness of black grouse conservation was raised among practitioners through five workshops and the production of a conservation brochure. SAF funding of two black grouse recovery projects helped to facilitate 60 Rural Development Contracts of relevance to black grouse. It funded a fence marking/removal project to help to reduce bird fatalities and helped fund a seven-year forest management trial in Galloway Forest Park and Fort Augustus. More recently SAF funded two reviews examining the level of supporting evidence for various black grouse conservation techniques, and the extent and efficiency of existing/previous black grouse conservation work.
- **Conclusions and future recommendations** – conservation action was delivered through a number of different initiatives. Recognising the importance of partnership working we hope to improve black grouse monitoring, targeting of resources and conservation delivery across Scotland. RSPB, GWCT, FCS and SNH are currently developing some of these recommendations through the black grouse Scottish Biodiversity Action Plan group (SBAP).

## Introduction

### Species background

The male black grouse (black cock) has blue-black plumage, with white wing-bars, white under the tail, and curled outer tail feathers (Fig. 1); the female (greyhen) has a barred, dark brown plumage and a whitish wing-bar. Both sexes have red wattles above the eye.



Fig 1. Male black grouse on a lek.

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### Why was this species on the Species Action List?

It satisfied criterion 1a of the Species Action Framework as a species for conservation action (SNH, 2007). It underwent a rapid decline (over 50%) in the breeding population over the previous 25 years and as a result there was an urgent need for further targeted management. There had been relevant ecological research undertaken on the species, primarily by the GWCT and the RSPB. Both targeted and broader habitat management had made a difference to population and range recovery (e.g. the population decline in England and Wales had halted). It was identified as a UK Biodiversity Action Plan (UKBAP) Priority Species and is on the Scottish Biodiversity List. Its legal status is covered by Part 1 of the Wildlife and Countryside Act 1981, as amended.

### Habitat, distribution and abundance

The UK population is estimated at 5,078 displaying males, two-thirds of which are found in Scotland, with the highest densities occurring in the north east (Sim *et al.*, 2008). Black grouse are birds of transitional habitats, generally preferring the moorland/woodland edge in north Scotland and the moorland/farmland fringe in the south.

Within these areas they are largely dependent on a mosaic of scrub and an understory of heather (*Calluna vulgaris*) and blaeberry (*Vaccinium myrtillus*).

## General ecology

In spring black grouse gather at traditional 'lek' sites in the morning where males display competitively and females select their mates. Males take no further breeding role. Females nest on the ground in dense vegetation and lay 6–11 eggs in late April–early June. The adult diet includes blaeberry and heather but the young depend largely on invertebrates for their first three weeks, after which they gradually shift to a herbivorous diet. After their natal movements black grouse rarely move further than 1.5 km, often attending the same lek between years.

## History of decline, contributory factors and current threats

The UK population of black grouse has been declining in range and numbers since the 1900s. Its range declined by 28% between 1968-72 and 1988-9, while the UK population declined dramatically from an estimated 25,000 lekking males in 1990 to just 6,510 in 1995/96. The 2005 survey revealed a continuing UK decline of 22% since 1995/96. Recent losses were recorded in England but the bulk of the UK population is still declining in Scotland, where numbers between 1995/96 and 2005 fell by an estimated 29%. In particular, the south west (–49%) and south east (–69%) of Scotland suffered the largest declines (Sim *et al.*, 2008). It is believed that these declines are due to a number of factors (Cole *et al.*, 2012), including:

- Loss of important plant food sources, such as blaeberry, heather, cotton grass (*Eriophorum* spp.), rushes (*Juncus* spp.) and birch (*Betula* spp.) scrub, due to over-grazing, agricultural intensification, bog drainage or shading of the understory by conifer maturation.
- Lack of appropriate understory/open ground management (e.g. grazing, burning, swiping); this can create unsuitable rank ground conditions.
- Collisions with fences put up to exclude deer from woodlands.
- Loss of nesting cover and sources of insect food.
- Fragmentation of black grouse habitat leading to small populations that are unlikely to persist.

- Predation, mainly by foxes and crows, which may be a limiting factor in some regions.

## Aims

### Aims for 2007-2012

To contribute to the UKBAP objectives for black grouse, the objectives of the SAF project in Scotland were to stem the decline in numbers and range, and specifically to:

- Maintain the population of black grouse (at least to its 1996 level) and work towards the longer term aim of increasing the population.
- Restore the range of black grouse to its 1991 extent by 2011 and work towards the longer term aim of increasing the range.
- Promote recolonisation of formerly occupied areas between currently isolated populations.

## Management Action

Conservation action was delivered through a number of different initiatives in three major areas:

- Awareness raising and practitioner events
  - Black grouse training, open days and awareness raising events
  - Black grouse website update
  - Black grouse conservation leaflet
- Conservation work
  - Fence marking and removal across Scotland
  - Black grouse management trial
  - Two black grouse recovery projects
- Review projects
  - A review of management prescriptions for black grouse in the UK
  - A review of black grouse conservation work in Scotland.

## Awareness raising

A range of prescriptive techniques are available for black grouse conservation; to maximise the efficiency of management, best practice advice is needed.

**Objectives:** To raise awareness of black grouse conservation and advise on appropriate management techniques.

**Approach:** Best practice conservation advice was provided to land managers at practitioner events in the Borders, Argyll, Dumfries and Galloway, and Highland. A conservation brochure was produced and the black grouse BAP website was updated.

**Partnership working and resourcing:**

Practitioner events were run in partnership with RSPB and GWCT. The website update and conservation brochure were produced with input from SBAP partners.

**Results:** Seven events were run over three years (2008–2010) delivering best practice advice to more than 100 land managers, agents and statutory agency staff. Land managers undertook black grouse management with the support of their local advisory officers. RSPB staff worked with Black Grouse BAP group partners to update the information on the [Black Grouse UK website](#) and within the conservation brochure [Black grouse – habitats and land management](#) which is available online.

## Conservation work

SAF funding supported practical conservation work in four projects which included:

- i) fence marking and removal;
- ii) a management trial; and
- iii) two specialist recovery projects.

### *Fence marking and removal*

**Background:** Collisions with fences can be significant cause of black grouse mortality. Removing fences or marking them with visible material (Fig. 2) reduces this risk.

**Objectives:** To reduce black grouse mortality by marking or removing high risk fences.

**Location of work:** Across Scotland.

**Approach:** SAF funding enabled RSPB Conservation staff to approach land managers with high-risk fences. Where individuals were keen, work was carried out.

**Partnership working:** This was a partnership project between RSPB and SNH.

**Results:** A total of 6,000 m of fence removal and 2,500 m of fence marking was carried out on three estates: Glen Moriston, Croik and Glentromie.



Fig 2. A marked fence.

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## *Trial management project*

**Background:** Woodland or scrub is often important to black grouse, providing sources of food and cover, and where conditions are suitable (for example, open tree canopy and low grazing pressure) providing suitable field-layer vegetation. Black grouse distribution in Scotland appears to be closely associated with the presence of young trees or suitable woodland-edge habitat. Despite its potential importance, little is known about black grouse responses to forest management.

**Objectives:** To undertake positive black grouse management and identify prescriptions for use in commercial forestry design plans.

**Location of work:** Two Trial Management Areas (TMAs) within Galloway Forest Park (Dumfries and Galloway) and Fort Augustus (Highland).

**Approach:** Both TMAs were split into a series of grid squares, each 3 km<sup>2</sup> in size with a 1 km buffer. During 2007 and the winter of 2007/08 forestry practices of potential benefit to black grouse (e.g. restructuring the forestry edge, heather swiping) were undertaken within some of these blocks. To examine any associated direct (black grouse performance) or indirect (environmental change) response a number of monitoring programmes were undertaken, annually, during 2007-10, including: lek monitoring, brood counts, predator transects and vegetation surveys. Lek monitoring continued during 2011-13.

**Problems and solutions:** Implementing some of the forestry practices proved more challenging and expensive than originally anticipated. Consequently less forestry work was feasible

than initially planned, which impacted on the ability to detect black grouse or environmental responses to the work within a relatively short time span. Although lek surveys continued beyond 2010, information on breeding success, predator densities and vegetation change is only available for the first four years after management. Further funding would be needed to fully assess the results over a long timeframe to realise the potential of this project and deliver the original objectives.

**Partnership working:** This was a partnership project between RSPB, SNH and FCS.

**Results:** RSPB and FCS Forest Research completed a preliminary analysis in 2010. Analysis of data collected between 2007 and 2009 failed to detect an early response from black grouse to the management undertaken. Further monitoring and analysis would be required to assess whether there is a detectable response over a longer timeframe of the forest management.

### *Recovery project: Black grouse groups in Scotland*

**Background:** Black grouse groups are present throughout Scotland. They provide an invaluable resource for local land managers, providing a coordinating body for black grouse monitoring and best-practice conservation advice. Although some have been running for many years, several are still in their infancy, and lack the co-ordinating capacity of larger groups.

**Objectives:** To work with local study groups and land managers to help coordinate regular lek monitoring and provide 'best practice' management advice for the conservation of black grouse.

**Location of work:** Grampian, Speyside, Perthshire, and the Lammermuir Hills.

**Approach:** This project ran from 2010 to 2012 and was coordinated by a senior GWCT agricultural advisor. Through practitioner events and individual visits, land managers were advised on coordinating black grouse monitoring, appropriate predator, habitat and disease management techniques and available funding packages.

**Problems and solutions:** In the Lammermuir Hills, black grouse numbers are extremely low, with conflicting land-use demands limiting recovery. Uptake of agri-environment support for black grouse across the target areas was limited. To help

deliver the right management techniques in the right places, advice was targeted on a case-by-case basis through specialist farm visits.

**Partnership working and resourcing:** A wide range of land managers from the gamekeeping and farming communities were involved. Funding was provided by SNH with GWCT providing staff time.

**Results:** Eight black grouse groups in Scotland are supported by enthusiastic representatives from landholdings within group areas. Monitoring was undertaken by each group. Strenuous efforts were made to hold two meetings a year within each group area, though this was not always achieved because of the annual work load in the upland estate calendar. In the Lammermuir Hills there was an increase in SRDP applications during the project. The agricultural advisor facilitated eight submissions, all of which were successful.

### *Recovery project: Argyll and Stirling recovery project*

**Background:** In response to the decline in the south and west of the Scottish range a three year recovery project took place in Argyll and Stirling.

**Objectives:** To provide a better understanding of black grouse within Argyll and Stirling, and improve numbers and range through increasing the amount of suitable habitat.

**Approach:** A black grouse Project Officer coordinated this project, and made annual lek counts with about 35 volunteers. Landowners, tenants and agents surrounding core lek sites (with at least three birds) were contacted, and advice provided on an individual basis and through two advisory workshops. SRDP provided the main funding mechanism for the habitat management. This project ran from 2009 to 2011.

**Problems and solutions:** Landscape-scale management presents both a financial and practical challenge, as core populations within Argyll are widely dispersed. Some landowners who attended the workshops sought further advice but only a few incorporated all the recommendations of the Project Officer into final applications. Low payment rates for some SRDP options reduced the number of options that landowners applied for. Thus, management was largely delivered opportunistically.

**Partnership working and resourcing:** A wide range of land managers from the gamekeeping, farming and forestry communities were involved with the project. This project was a partnership between RSPB, SNH, FCS, Scottish Power, and GDF Suez.

**Results:** During 2011 a total of 241 displaying males were recorded, with an increase from 90 to 99 males across 19 comparable leks (2009–11). Thirty people attended advisory workshops, eight farmers subsequently requested site visits and four secured SRDP funding for black grouse habitat management. The Project Officer undertook 36 sites visits, input into 19 Long Term Forest Plans and 33 moorland applications (17 of which were successful).

## Review projects

To assist future conservation delivery SAF supported two review projects: 'a review of management prescriptions for black grouse in the UK', herein referred to as the 'Calladine review', and the 'black grouse Conservation Review Project' (CRP).

### Calladine review

**Background:** There are a number of monitoring techniques, delivery mechanisms and management prescriptions currently advocated for black grouse conservation. The 2002 Calladine review evaluated these techniques, and the SAF project funded an update.

**Objectives:** To evaluate the efficiency of black grouse monitoring techniques, delivery mechanisms and management prescriptions currently advocated by conservation staff.

**Approach:** The review collated details of the advice given to land owners and managers. Summarised into prescriptions or themes these were reviewed by reference to relevant literature and scored against observed or expected effectiveness

**Partnership working and resourcing:** This was a partnership project between RSPB and SNH, with input from GWCT and FCS.

**Results:** The review (Cole *et al.*, 2012) can be downloaded from the [RSPB website](#).

### Conservation Review Project

**Background:** Over the past decade significant effort has been invested in black grouse monitoring and conservation management. However, the breadth and efficacy of this work, on a national level, is largely unknown.

**Objectives:** To examine the extent and efficiency of recent black grouse monitoring, Scotland Rural Development Programme (SRDP) expenditure, and conservation effort, across Scotland, through three standalone reports.

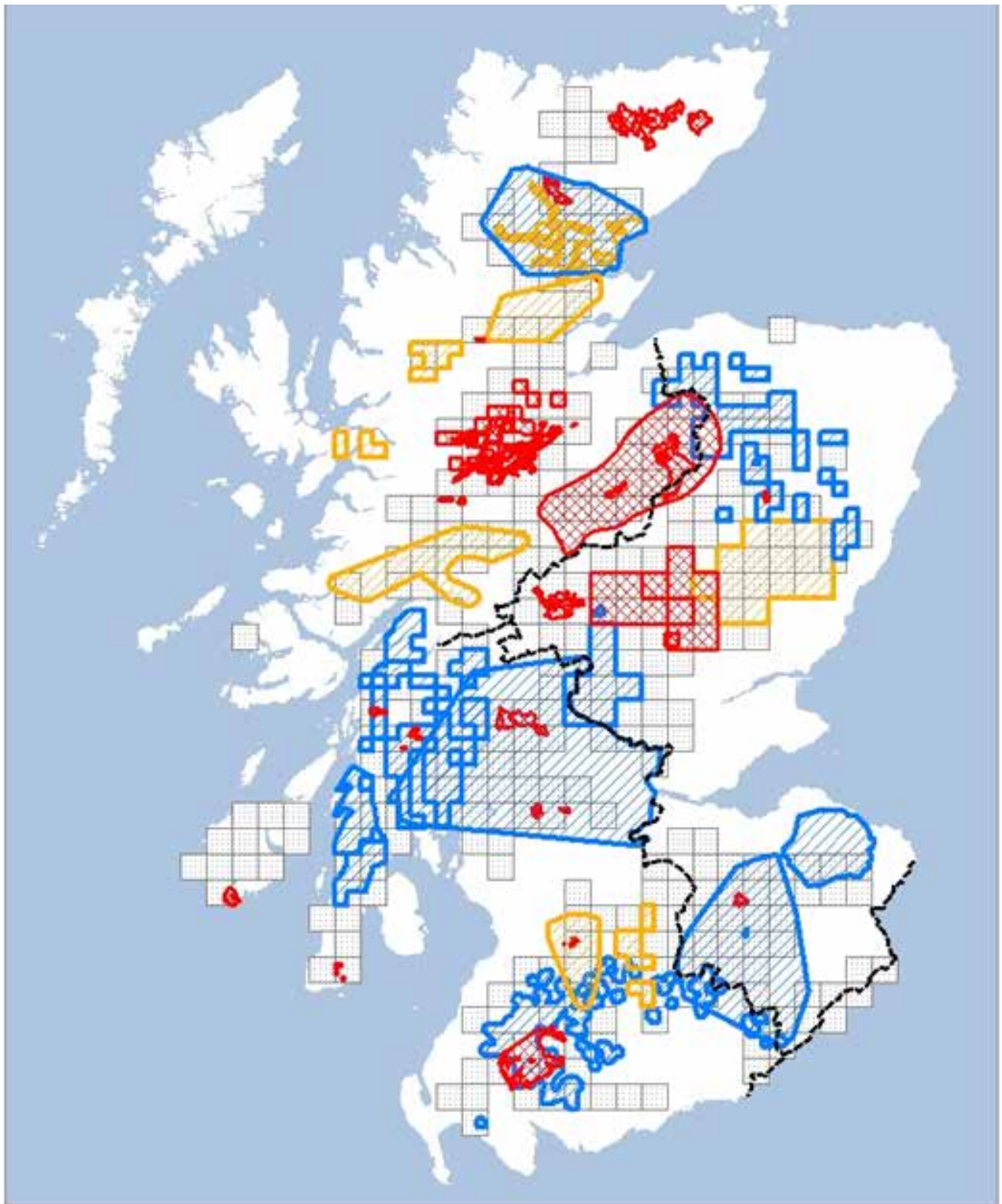
#### Approach:

- The first report identified the location of all black grouse monitoring undertaken across Scotland between 2001 and 2011. It assessed the extent and results of monitoring and compared them with the 1991 Breeding Bird Atlas range and the most recent national population survey (i.e. Sim *et al.*, 2008).
- The second report quantified SRDP expenditure of relevance to black grouse and assessed its targeting.
- The third report identified the location and extent of black grouse conservation work between 2007 and 2011.

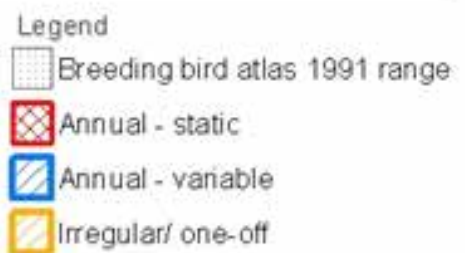
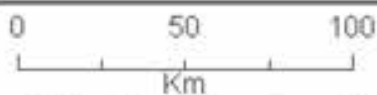
**Partnership working and resourcing:** This was a partnership project between RSPB, SNH, GWCT and FCS.

#### Results:

- Within Scotland an estimated 50% of the 1991 Breeding Bird Atlas range was monitored between 2001–11 (Fig. 3) with an aggregated number of 4,713 males recorded by the most recent surveys (41% higher than the last national estimate) (Hawkes and Corrigan, 2013).
- Under SRDP, over £8 million was drawn down through the black grouse package and a further £92 million was committed through Rural Priority options with potential black grouse benefit (Hawkes, 2013a; Fig. 4).
- In Scotland, black grouse conservation has been delivered through five specialist recovery projects between 2007–12, alongside management on at least 12 nature reserves and 22 forests on the national estate (Hawkes, 2013b; Fig. 5). The reports can be downloaded from the [RSPB website](#).



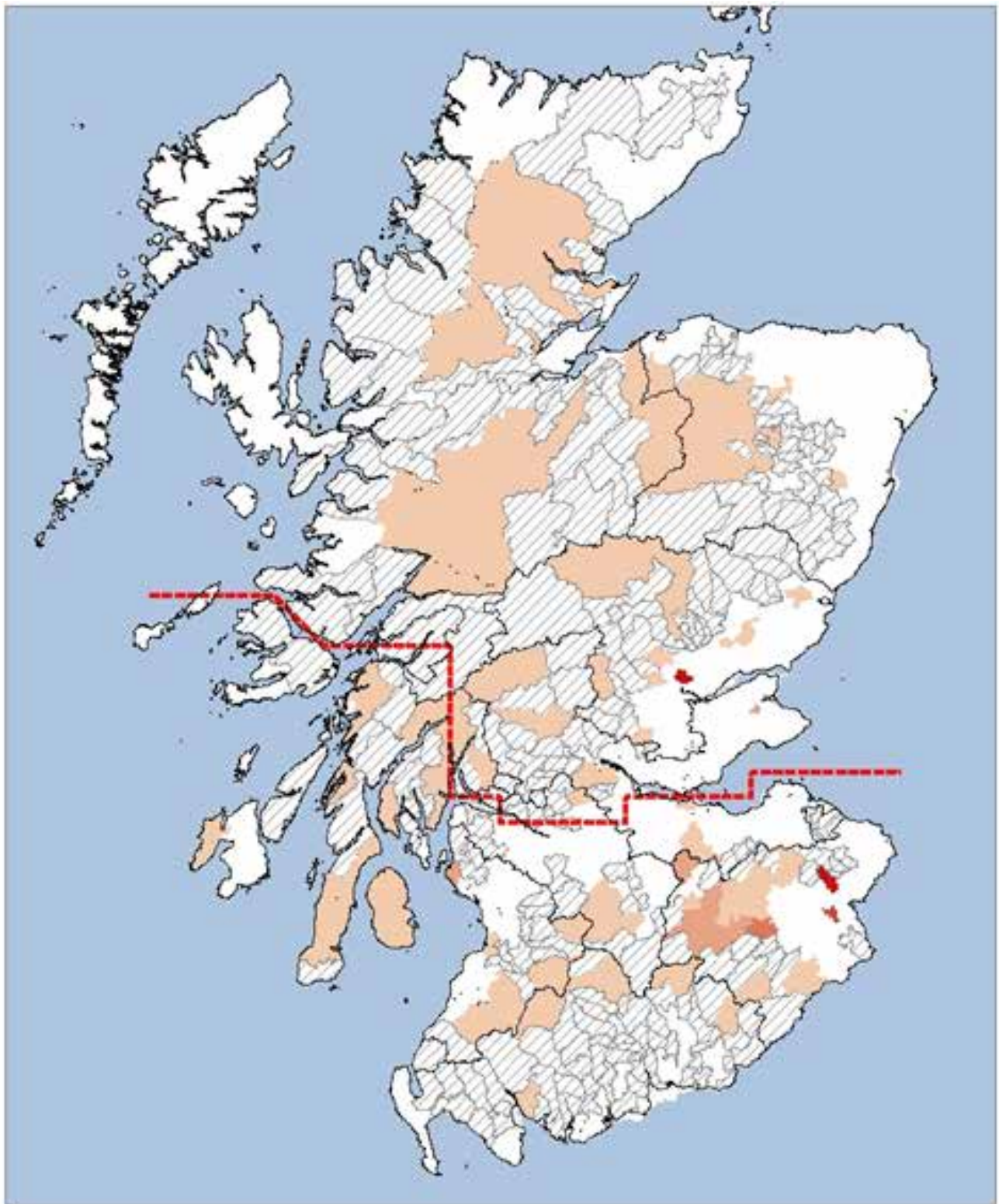
Scotland - Black Grouse Monitoring Effort 2000-11



Created by: Sergio Boggio and Robert Hawkes, 19 October 2012



Fig 3. Coverage of black grouse monitoring between 2000–11 in relation to the 1988–91 Breeding Birds Atlas range (from Hawkes and Corrigan, 2013).



**Black grouse package:  
Total committed spend (£/ha)**



Created by Robert Hawkes and Paul Britten, 03 July 2012



**Legend**

- North/ South divide
- Occupied parish with no RP spend
- Very low spend
- Low spend
- Medium spend
- High spend
- Very high spend

Fig 4. SRDP black grouse package spend (from Hawkes, 2013a).



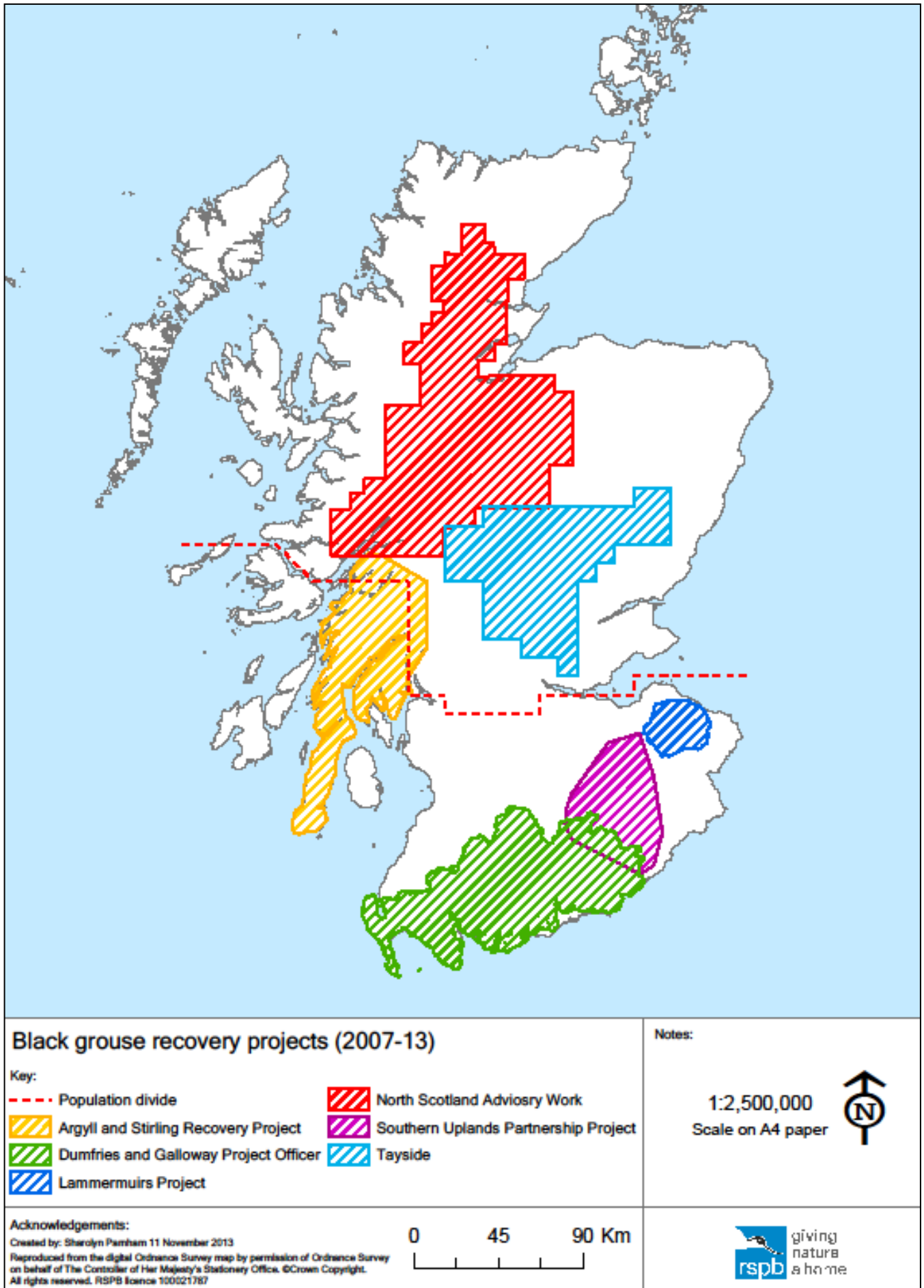


Fig 5. Black grouse recovery projects 2007-13.

# Lessons Learnt, Further Work and Future Recommendations

## Black grouse monitoring

Over the past ten years significant resources have gone into black grouse lek monitoring. Survey extent across Scotland is good, but currently there is no national coordination of localised monitoring data. Several data holders have reservations about information sharing whilst others lack the staffing capacity to collate records. Consequently, there is no mechanism for assessing the status and distribution of the population between national surveys.

### Recommendations

- Gain a better understanding of status and distribution of the Scottish black grouse population by coordinating survey findings through a national monitoring scheme.

## Agri-environment

Although the overall effectiveness of SRDP is unknown, black grouse package expenditure was delivered well in some areas and poorly in others. Future resource needs to be targeted towards those areas of greatest conservation concern.

### Recommendations

- Examine whether SRDP and previous grant schemes have assisted black grouse recovery.
- The black grouse SBAP group recommends that future agri-environment resource should be targeted towards the south of the central Scotland belt, the region of greatest conservation concern.

## Conservation delivery and management prescriptions

Recovery projects are an important mechanism for delivering targeted conservation action across a landscape scale. Future delivery would be enhanced by focussing on prescriptions with a known population level effect, and targeting areas of conservation concern.

## Recommendations

- Continue to support projects encouraging population recovery and range expansion. These should primarily target the vulnerable south Scotland population with additional reactive advice support elsewhere.
- Advocate moorland management, new native woodland creation and predator control as key prescriptions for black grouse management.
- Recommend best practice guidance to the Scottish Government to ensure agri-environment support is fit for purpose and available in the right areas.
- Conduct further research to evaluate the effectiveness of potentially important management techniques.

## Long term delivery

To secure the future of this vulnerable bird, we need to make black grouse less conservation dependent.

### Recommendations

- The SBAP group should lead on the production of a strategic approach to black grouse conservation delivery in Scotland.

## New and ongoing work since SAF ended

- Similar management for black grouse continues, supported by funding via the Scottish Rural Development Programme.
- In south and west Scotland a black grouse project officer was employed by the RSPB from March 2013 to May 2014. The project officer coordinated and conducted lek surveys in Argyll, Central Scotland and Ayrshire and provided advisory support to land managers.
- The collation of black grouse lek survey results from across Scotland was trialled in 2014.
- A desk study looking into how the scale and quality of moorland habitats influences black grouse numbers and distribution in southern Scotland was published ([Warren et al., 2014](#)). It is hoped that this will contribute to the evidence base for the development of a strategic conservation plan.

## Key Management Messages

- Black grouse should be managed at a landscape scale.
- A better understanding of status and distribution of the Scottish black grouse population should be gained by coordinating survey findings through a national monitoring scheme.
- Support should continue for projects encouraging population recovery and range expansion. These should primarily target the vulnerable south Scotland population with additional reactive advice support elsewhere.
- Moorland management, new native woodland creation and predator control should be advocated as key prescriptions for black grouse management.
- Further research should be conducted to evaluate the effectiveness of potentially important management techniques.

## Further Information

<http://www.blackgrouse.info/> – Black Grouse UK website, published in support of the UKBAP for black grouse.

<http://www.snh.gov.uk/about-scotlands-nature/species/recent-species-projects/black-grouse/> – SNH webpage on black grouse.

<http://www.rspb.org.uk/whatwedo/projects/details/357335-black-grouse> – RSPB webpage with details of black grouse research.

<http://www.rspb.org.uk/discoverandenjoynature/discoverandlearn/birdguide/name/b/blackgrouse/index.aspx> – RSPB webpage with information on natural history and conservation of black grouse.

[Black grouse: habitats and land management](#) – RSPB leaflet on management for black grouse (2012).

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## The SAF Partners

- [Scottish Natural Heritage](#)
- [Royal Society for the Protection of Birds](#)
- [Forestry Commission Scotland](#)
- [Game and Wildlife Conservation Trust](#)
- [GDF Suez](#)
- [ScottishPower Renewables](#)

## The Species Action Framework Handbook

This account comes from the Species Action Framework Handbook published by Scottish Natural Heritage. For more information on the handbook please go to [www.snh.gov.uk/speciesactionframework](http://www.snh.gov.uk/speciesactionframework).

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