

# Uplands monitoring in 2010

Good breeding success of red grouse was associated with low parasite burdens. © Laurie Campbell



## KEY FINDINGS

- Red grouse, black grouse and capercaillie all bred well in 2010.
- High breeding success of red grouse was associated with low parasite burdens as most moors now use new medicated grit.
- Black grouse and capercaillie bred well owing to good post-hatch weather in June. This was much needed by black grouse in northern England, where numbers had dropped alarmingly following the cold, snowy winter.
- We are conducting a questionnaire survey of the fourth grouse species, ptarmigan, to determine current status, recent trends in abundance and distribution.

**David Baines**  
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## Red grouse in northern England and Scotland

We count red grouse using pointing dogs in late March to mid-April before breeding, and again in July or early August after breeding. The same block of heather moorland, usually of about 100 hectares in total, is counted each time. Overall, we count 45 blocks spread across Britain; 25 in northern England and 20 in Scotland.

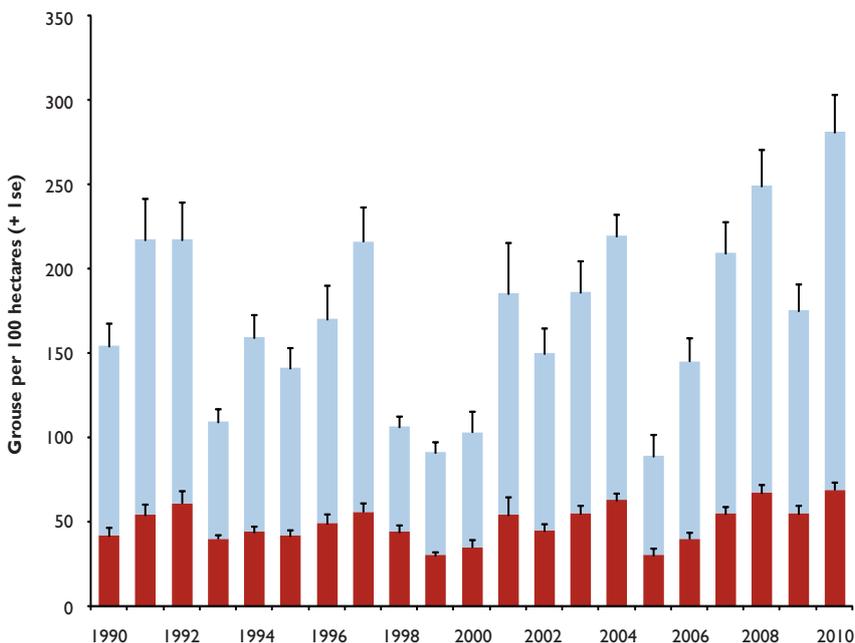
Medicated grit was used on three-quarters of our count areas in northern England, compared with fewer than half in both 2007 and 2008. Consequently, we had a very rapid grouse recovery on moors that had previously not used it and had suffered a crash in spring 2009 caused by parasites. Spring densities in 2010 averaged 86 birds per 100 hectares in northern England, an increase of 18% since spring 2009, and 48 per 100 hectares in Scotland, an increase of 60%. These increases were helped by good over-winter survival of red grouse, despite one of the coldest and snowiest winters in recent years, with many birds vacating the moors for several weeks at a time in mid-winter. The high spring densities, coupled with a good breeding season, resulted in the highest mean July grouse density we have ever recorded in England, a grand 281 grouse per 100 hectares (see Figure 1). In Scotland, densities rose by 50% from levels in July 2009 to 129 grouse per 100 hectares (see Figure 2). This represents

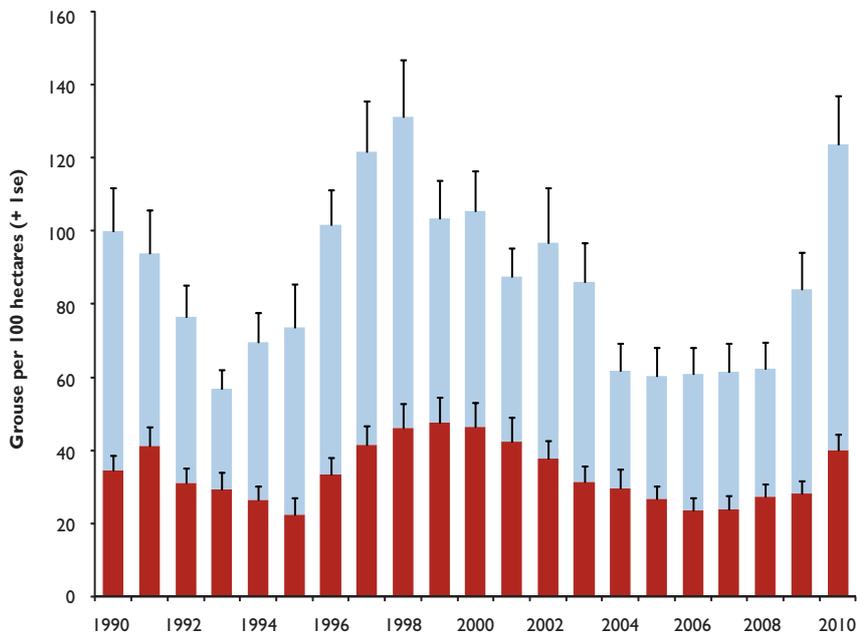
**Figure 1**

Average density of young and adult red grouse in July from sites\* across northern England, 1990-2010

Young grouse ■  
Adult grouse ■

\* 1990-2000 = 18 sites;  
2001 = 8 sites;  
2002-2003 = 18 sites;  
2004-2010 = 25 sites





**Figure 2**

Average density of young and adult red grouse in July from 20 Scottish moors, 1990-2010

■ Young grouse  
■ Adult grouse

a doubling on 2008 densities and values returning to levels last seen in 1998. Following a 40% increase in breeding success on moors using medicated grit, we had almost double the density of birds on these moors compared with moors where medicated grit was not used.

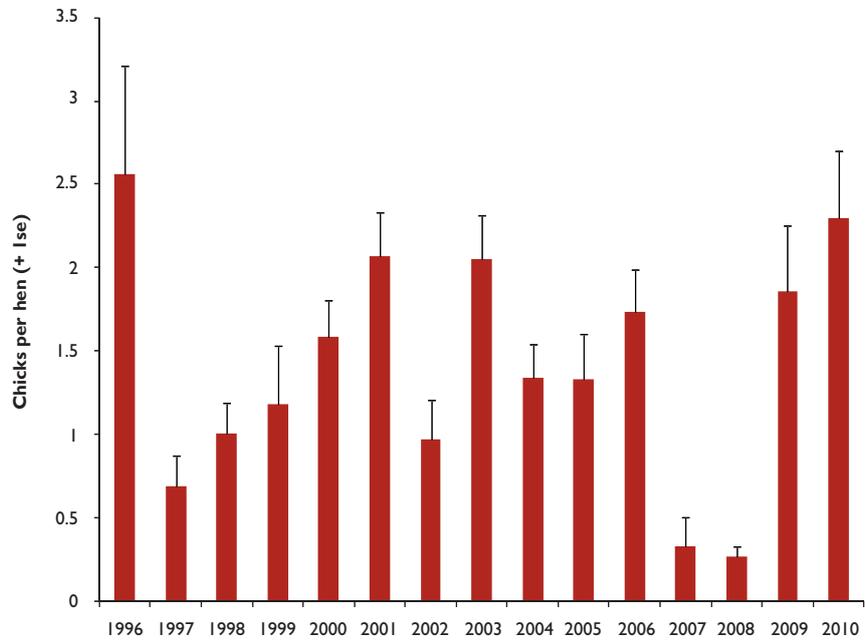
With continued use of medicated grit across most of our study moors, we predict that we will see a dampening in the four- to five-year cycle in grouse numbers that has typified moors in northern England. We hope that grouse production will be more consistent and shooting bags more readily predictable. Medicated grit has quickly become one of the most important tools available to the grouse manager. However, it must be used sensibly. Legally it must be withdrawn a month before shooting starts and over-zealous use could contribute towards the strongyle worm becoming resistant to the drug. In comparative livestock systems, this can occur within as few as five to 10 years. We need to work alongside disease experts to evaluate collectively how best to reduce the risk of this happening in grouse.

*Medicated grit must be used sensibly and, legally, must be withdrawn a month before shooting starts.  
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**Figure 3**

Black grouse breeding success in northern England between 1996 and 2010



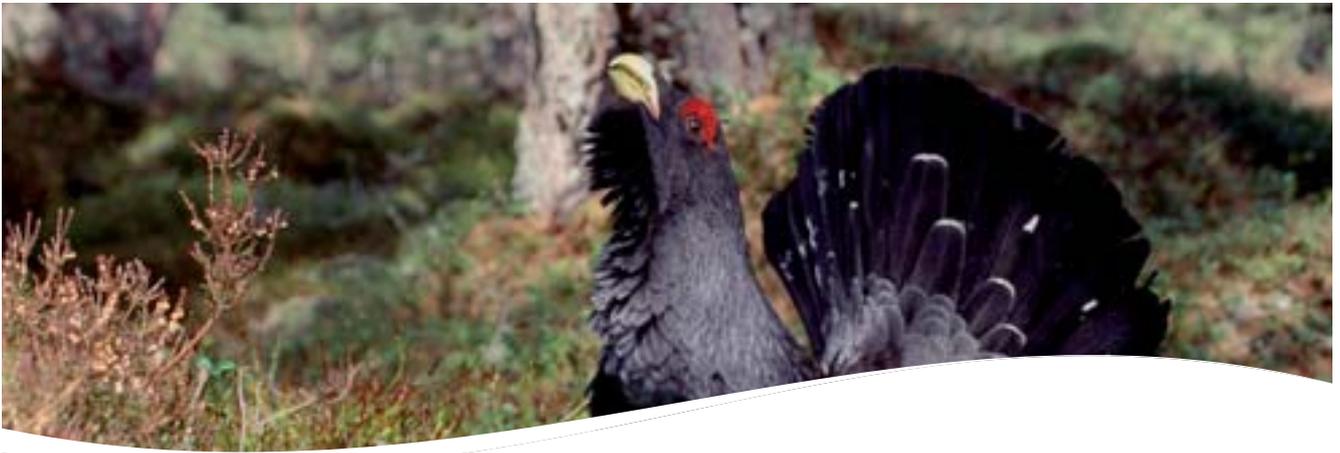
### Black grouse

In northern England, between 1996 and 2007, black grouse numbers recovered from 773 males to 1,207, but since then they have declined to their lowest recorded level, just 495 males in spring 2010. This was caused by two poor breeding years in 2007 and 2008 (see Figure 3) with only 0.33 and 0.26 chicks per hen following a wet June. In the 2009/2010 winter; four months of prolonged snow covered most of the heather, and black grouse numbers dropped by 35%, with the largest lek going from 35 to just three males. This poor over-winter survival is in part caused by the lack of woodland in northern England. Willow and birch can provide a crucial food source in adverse conditions. In Scotland, where woodland is generally more accessible to black grouse, they survived better with increases in numbers in the Scottish Highlands (+25%) and Angus Glens (+13%).

The 2010 summer breeding surveys in the North Pennines found 29 greyhens, 20 with broods and a total of 68 chicks; an average of 2.3 chicks per hen, the best breeding year since 1996 (see Figure 3). This above-average breeding success should lead a recovery. Similar good breeding success was recorded in the Scottish Highlands where 40 greyhens were found, 30 with broods and a total of 98 chicks, giving an average of 2.5 chicks per hen.

*Poor over-winter survival of black grouse is in part caused by the lack of woodland which can provide crucial food in adverse conditions. © Laurie Campbell*

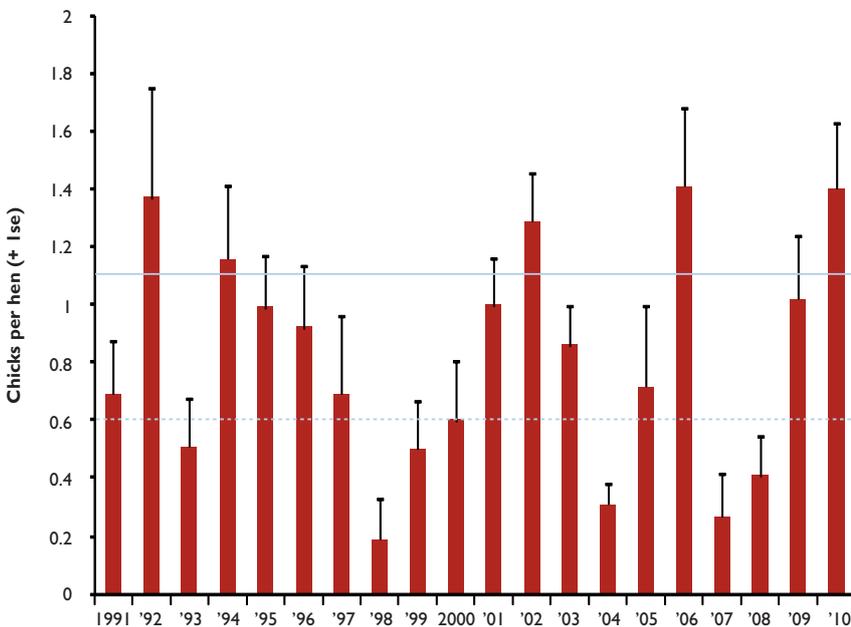




### Capercaillie

This is our 20th consecutive year of capercaillie counts, this year funded by Scottish Natural Heritage, and we recorded good breeding success with an average of 1.4 chicks per hen. This was not only the best since 1991 (see Figure 4), but also high for the second year in succession. This was based on sightings of 47 hens, 60% of which had broods. However, owing to declining numbers of birds across many forests, particularly those towards the edge of the range, sampling was restricted to 10 forests where densities were good. Consequently, these breeding data comprised primarily five sites in Strathspey, the core area for capercaillie, and contained 94% of all hens encountered. Outside Strathspey, there were insufficient sightings to generate regional breeding figures. The low densities of hens in these other regions could cause range contraction in some areas, which will decrease the resilience of the species to environmental change. Significant forest habitat improvements have been made throughout much of the range. Although this is helpful, improved breeding success in both 2009 and 2010 was linked to favourable weather conditions in June when chicks hatch.

Capercaillie production in 2010 was at its highest since 1991 and was high for the second year in succession. © Laurie Campbell



**Figure 4**

Capercaillie breeding success between 1991 and 2010\* sampled from 14-20 forests per year in the Scottish Highlands

Lines indicate levels of productivity required to maintain a stable population under different scenarios (taken from Moss et al. 2000): blue solid line – with fence collision mortality; blue dashed line – without fence collision mortality.

\* Please note that only the figures for 2003 to 2009 are directly comparable as capercaillie breeding success was derived from a different subset of forest areas each year before this, and in 2010 the number of forest areas was reduced.

### Ptarmigan

We have no history of work on ptarmigan, but in 2010 we started a new project trying to establish the bird's current status and trends in population abundance and distribution. Funded by the Cairngorms National Park Authority, we have circulated a questionnaire to montane land managers asking for information on ptarmigan sightings and any hunting bag data they may have. We are particularly interested in annual harvesting levels of this bird in relation to estimates of population size, and the possible effects of climate change on parasites, like strongyle worms.