

Hen harriers and the Joint Raptor Study

A joint statement between
The Game Conservancy Trust
and the Royal Society for the
Protection of Birds



A joint statement



The following conclusions are based on a meeting held between senior Game Conservancy Trust and RSPB staff in October 2002. They are presented here to identify issues on which both organisations agree and those on which, at that time, there was a need for further information before conclusions could be reached.

1. Status of hen harriers in the UK

Surveys compare the 1998 breeding survey with the one in 1988/89, based on 10 kilometre squares. All those known to hold harriers were surveyed plus a random sample of others. Overall UK figures were 534 pairs in 1988/9 and 521 pairs in 1998, plus a further 49 pairs on the Isle of Man.

Scotland still holds 84% of the UK population, and numbers have not changed significantly since 1988-89. Hen harrier numbers decreased in north-east Scotland. The Orkney population is declining despite a lack of persecution (see 5, below). Numbers increased in Northern Ireland and the Isle of Man.

Annual estimates of the number breeding in England suggest a decline between 1994 and 1998. Since 1997, there were no known successful breeding harriers on English grouse moors until 2002. The number of harriers in England increased on sites where they were given special protection. The population in England and Wales is low and vulnerable.

The majority of the Scottish population is now found on grouse moors. Harrier numbers increased on grouse moors, but declined in forestry areas, mainly because of increasing age of forestry stands. Grouse moors had a higher number of young breeding males, suggesting a higher than average mortality rate. Some of the symptoms of persecution outlined by Etheridge *et al* (1997) are still evident. This showed that in Scotland, there was significantly lower productivity on grouse moors than in young forestry plantations and moorlands not managed for grouse.

2. Hen harriers and red grouse at Langholm

The Joint Raptor Study and subsequent published research papers show that:

- From 1948 to 1988, there was a 48% reduction in heather cover, which resulted in a long-term decline in grouse bags of 3% per year since World War II.
- The changes in grouse bags at Langholm during 1992-96 could not be explained by changes in habitat or population cycles.
- Raptor predation at Langholm reduced autumn grouse abundance by 50%, leading to the cessation of driven grouse shooting.
- Because they were based on 1995 data, the calculations in the report are likely to



have under-estimated the total effect of raptors compared with subsequent years when raptor numbers were higher.

- The unprecedented build-up in harrier numbers at Langholm was probably a consequence of complete raptor protection, the grass/heather mix, the stage in the vole cycle and possibly the control of other predators (although this was not looked at explicitly in this study).
- Any moor with similar characteristics to Langholm may suffer the same fate. However, some of the factors above might be manipulated through habitat management to reduce this effect.
- The cyclic nature of grouse bags means that most Langholm-like moors will be vulnerable during low points in the grouse cycle.
- The link between heather cover, pipits and harrier settling density suggests that not all moors are necessarily like Langholm.
- Data from Moor C (in north-east Scotland) are too scant to understand fully what is going on there.

A subsequent report by DETR/CEH (Moorland Management and Predation) shows that:

- Langholm was an average moor, in terms of pipit numbers and heather cover, compared with a non-random sample of 29 moors thought to be representative.
- If illegal persecution of harriers ceased, and assuming no other change in land management, the link between heather cover, pipits and harriers implies that raptor predation could make driven grouse shooting uneconomic on more than half of all English and Scottish moors.
- Changing the heather cover might not improve grouse stocks, but it might reduce pipit (and vole) numbers and so reduce potential harrier numbers.
- Changing the habitat may reduce the attack rate of harriers on grouse broods if it results in more broods being in long heather.
- The number of years it would take to bring about significant recovery in heather cover following over-grazing would vary on a site by site basis, depending on the starting point, climate, underlying geology, etc.
- It was not clear how changing the heather:grass ratio would affect other species such as waders, but it is known that golden plover like short cover eg. burnt heather.

3. The way forward

The DETR/JNCC UK Raptor Working Group report contained the following conclusions that are relevant to harriers on grouse moors:

- The Group considered only interventions that do not require a derogation from the EU Birds Directive. Although potential solutions that do not require derogation remain untested, the group ruled out the lethal control of raptors.
- Thus habitat improvement and diversionary feeding were considered as essential first steps in seeking a solution. Enhancement of heather cover was seen as a medium-long term step in the recovery of grouse bags by decreasing pipit and vole densities and thus the attractiveness of the habitat to settling harriers. Clearly, moor managers would need confidence to embark on an investment of this kind; diversionary feeding, by reducing harrier predation on grouse, may provide this if it does not have negative side effects that offset potential benefits. These methods deserve more widespread testing on commercially viable moors.
- In its opening letter to the Minister the Group said: "that a timetable and clear targets to seek to resolve the current conflicts should be developed. These targets could then be used to judge the success or failure of our suggested approach".
- In discussion, RSPB noted that there are already legal targets set for hen harriers in Special Protection Areas of the Natura 2000 network. These targets relate to maintaining the status of harriers breeding within SPAs.



UNANSWERED QUESTIONS

What information is there on the level of gamekeeping at Langholm post 1997, eg. predator bag records, and numbers of harriers and pipits?

Has the SNH management agreement sustained moorland management re grazing levels, burning and predator control?

What information is there on Moor C since the JRS work?

UNANSWERED QUESTIONS

Is there any additional information on causes of chick loss at Langholm?

Can the targeting of food provided for diversionary feeding be improved, to reduce the proportion taken by non-target predatory species?

How do these findings fit with data from Wales – especially Lake Vyrnwy and Pale Moor?

Why have harriers numbers dropped at Langholm since the JRS?



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Diversionary feeding

Feeding harriers reduced the number of grouse chicks taken back to the nest by 86%.

Grouse stocks continued to decline during diversionary feeding; losses of chicks remained high due to unknown factors other than harriers. This result was not expected following the findings of the Joint Raptor Study at Langholm. It suggests that either:

- i there was an over-emphasis on predation by raptors (unlikely given the intensity, length and quality of the study at Langholm),
- ii other factors changed at Langholm after the cessation of the Joint Raptor Study eg. effects of other predators, or
- iii diversionary feeding itself had negative side effects that offset its potential benefits – for example, if it had attracted other generalist predators into the locality which increased the predation on grouse.

Diversionary feeding trials intended for United Utilities land at Bowland in 2002 were opposed by EN. RSPB had concerns that United Utilities' estate was no longer a driven grouse moor and would require substantial habitat recovery in parallel with feeding.

There are genuine difficulties in finding appropriate study areas for diversionary feeding trials. Sites need to have enough harriers to depress grouse productivity, and enough grouse to measure reliably any improvement in productivity resulting from diversionary feeding. If uptake of diversionary feeding can be encouraged by adequately funded management agreements (eg. through SNH's Moorland Management Scheme), then monitoring of these sites may provide an alternative to further formal experimentation.

4. Breeding success and population dynamics of harriers

Using the data set described by Etheridge *et al* (1997) it was found that breeding success was of the order of 20% on grouse moors, but between 60-80% away from grouse moors or where they were protected. There was no evidence that breeding success improved in the absence of foxes.

5. Harrier success and food supply on Orkney

The proximate cause of decline of the Orkney hen harrier population is a decrease in the amount of food that males are able to supply to females during the pre-lay period, reducing probability of clutch initiation, hatching success and polygyny rate. The ultimate cause is the effect of grassland improvement and increases in sheep stocking on the area of unmanaged rough grassland – a favoured hunting habitat supporting high densities of several key prey species.

