

# Environmental Studies FACT SHEET



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## Hen harriers v Red grouse: a moorland management conflict

Heather moorlands cover large areas of the UK's uplands but, globally, they are rare. In terms of conservation, they are important bird habitats.

This Factsheet focuses on the conflict between landowners who manage their heather moors for grouse shooting and conservationists who argue that gamekeepers on such moors are responsible for almost wiping out the hen harriers, large birds of prey that feed on grouse.

### Moorland management

Moorlands are managed as a **plagioclimax** – a habitat that is prevented from developing further by human intervention. On moorlands, this may involve burning, mowing, removing trees and allowing grazing. The most common approach involves periodic burning to encourage the regeneration and regrowth of heather and to inhibit species that are not wanted.



[http://commons.wikimedia.org/wiki/File:Burnt\\_heather\\_moorland\\_on\\_Bewick\\_Moor\\_-\\_geograph.org.uk\\_-\\_1139535.jpg](http://commons.wikimedia.org/wiki/File:Burnt_heather_moorland_on_Bewick_Moor_-_geograph.org.uk_-_1139535.jpg) Andrew Curtis

### Managing moors for grouse

There are an estimated 459 grouse moors in the UK, covering 4428 km<sup>2</sup> or 56% of the total upland cover.

Management for grouse involves burning heather and controlling predators and parasites. Many gamekeepers consider the major predator of the red grouse to be the hen harrier (*Circus cyaneus*) and have adopted a “zero tolerance” approach – every hen harrier they see is killed.



The hen harrier is an endangered and protected species and the RSPB estimate there are only 646 breeding pairs left in the UK, with just two nesting pairs in England.

Historically, the decline of the hen harrier is not down to shooting by gamekeepers but to habitat loss, especially enclosure and agricultural conversion of heaths, downs and wetlands. Hen harriers are restricted to upland heath because of our intensive management of the lowlands.

Despite their endangered status gamekeepers continue to shoot and poison them because grouse shooting can generate useful income and, as landowners argue, moorland management, such as heather burning, is expensive and needs to be justified by some profit.

There are costs and benefits of managing moors for grouse shooting (Table 1).

**Table 1. Costs and benefits of managing moors for grouse shooting**

Costs	Benefits
Raptors such as hen harriers are usually killed on sight because high grouse densities (>60 birds km <sup>2</sup> ) are needed to make management even slightly profitable	Grouse shooting contributes to the UK's rural economy by providing jobs for gamekeepers and temporary employment for beaters (lines of people who walk across the moor driving the grouse towards the guns). However, beaters are often volunteers
Inappropriate heather burning – to provide the grouse with fresh shoots – has reduced biodiversity, damaged blanket bogs and deep peat, carbon - rich soils and has resulted in increased erosion	Grouse management has helped to slow rates of loss of heather moorland and prevent succession

Moorland management for conservation is tricky. Different species prefer different conditions! (Table 2).

Table 2 Moorland preferences

Species	Preferred food source	Preferred height of heather for feeding or nesting / cm	Preferred size of heather patches
Red grouse	Heather: 10-30cm in height	> 25	small
Golden plover	Heather: < 10cm in height	< 10	large
Twite	Grass seeds and insects in patches between heather	> 15	large
Hen harrier	Birds: Grouse, Meadow pipit, Golden plover	> 60	small
Merlin	Small birds e.g. Twite	< 30	small

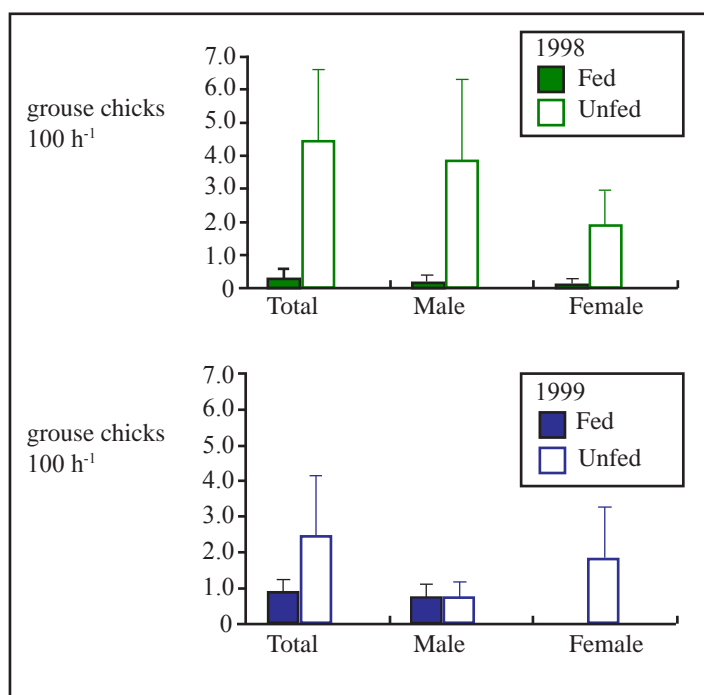
**Question: How can moorland managers try to accommodate these different preferences so as to maximize biodiversity?**

**How to conserve the hen harrier?**

Two approaches have been tried:

1. Diversionary feeding - providing carrion to nesting hen harriers. The Langholm Moor study (see Box) showed that this did reduce predation of grouse chicks (Fig.1).

**Fig. 1 Mean rate at which hen harriers delivered grouse chicks to their young**



- However, this didn't lead to an increase in the number of adult grouse available to be shot.
- Moving (translocating) hen harriers to other moors once their population reaches an agreed "ceiling". Scientists believe that this approach is unsustainable because the number of alternative sites will eventually run out. There is also the potential problem – thus far not investigated – that removing hen harriers would merely lead to an increase in other predators such as buzzards.

Other suggestions include:

- Hand-rearing grouse chicks and releasing them shortly before the shoot
- Adopting measures to increase the populations of golden eagles – that might then regulate the hen harrier population

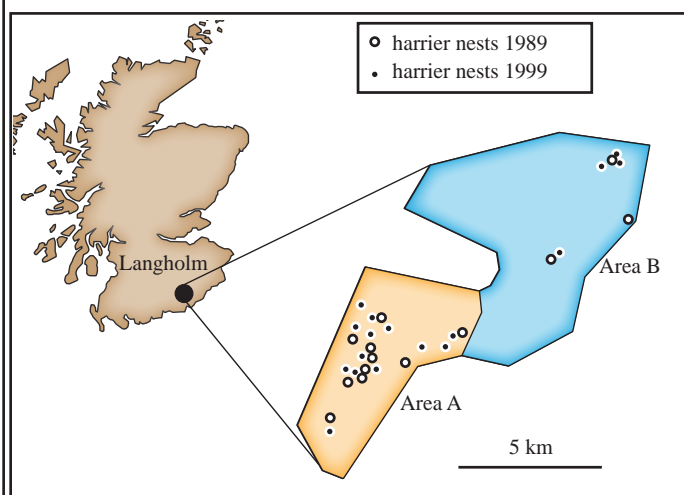
- Compensating landowners for managing moors less intensively and for producing fewer grouse
- Providing grants for landowners to develop bird viewing facilities (Whitetailed eagles alone contribute £1.5 million per year to the local economy of the Scottish island of Mull and support 30–40 FTE jobs)

Hen harriers are already protected, but continue to be killed. In the end we need firmer law enforcement that includes a compulsory licensing scheme for individual shoots and that focuses on known problem areas and implementation of more effective crime prevention and detection strategies with higher penalties for offenders.

**The Langholm Moor study**

This is the longest-running study anywhere on hen harrier–grouse dynamics. The scientists studied six grouse moors on the Scottish Borders between 1992 and 1997 (Fig. 2)

**Fig. 2 Langholm Moor**



Hen harriers were fed supplementary food to investigate whether this would reduce predation of grouse chicks. They concluded:

- Densities of breeding hen harriers were related to the abundance of passerines (perching and song birds e.g. Meadow pipit) and rodents rather than grouse
- High breeding densities of hen harriers caused significant declines in grouse populations and reduced shooting bags (the number of grouse the shooters got to shoot)
- A minimum of 78% of the radio-tagged grouse that were killed during spring were killed not by hen harriers but by other raptors
- Some landowners have been forced to give up grouse shooting as a result of the conservation status of hen harriers

**Activity: Differing viewpoints!**

Read the differing statements from the RSPB and Countryside Alliance and then make a list of the evidence that you would collect in order to investigate the issue.

RSPB	Countryside Alliance
<p>“Hen harriers are close to extinction in England after the country’s only two nesting pairs failed to breed.</p> <p>Shooting estates have tried to “remove this bird since it recolonised”</p>	<p>“The RPSB are wrong to blame grouse moors and hen harriers are not facing extinction. The problem is breeding failure. Moorland managed for grouse shooting accounts for about 20% of the uplands of England and Wales, yet the breeding success of hen harriers on the remaining 80%, which includes land managed by the RSPB, has been no better.</p> <p>Who is to blame there, as it cannot be grouse moor managers?”</p>

**References**

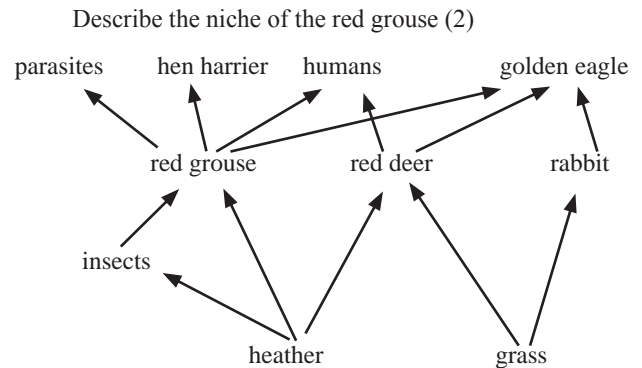
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**Practice Question**

- (a) Moorlands are an example of a plagioclimax. What is meant by the term plagioclimax? (2)
- (b) The diagram shows part of a moorland food web.



- (c) Name and explain a biotic factor that could affect the population of red grouse (2)
- (d) Outline the arguments for and against grants being paid to moorland landowners that conduct grouse shoots to maintain populations of hen harriers (4)

AGAINST:  
Moorland landowners have a legal duty not to persecute protected species;  
Landowners should/can pay for management of their own land; Ethical issues – is shooting grouse for fun acceptable?;

FOR:  
Hen harriers are part of the natural ecosystem;  
Moorland management for grouse shooting costs money: Moorland management for grouse shooting creates jobs; Hen harriers are a proven predator of grouse;

- (b) Lives on moorland;  
Omnivorous / feeds on both vegetation and insects;  
Food source for raptors / named raptor;  
Parasitised;
- (c) Change in parasite population;  
could increase or reduce kill of their host/ reduce/increase reproductive success;  
Reduction/increase of insects/heather;  
could reduce/increase food source;
- (d) Change to predator population;  
Change mortality/reproductive rate;

1. (a) Habitat;  
Prevented from reaching climax by human intervention;

**Mark Scheme**

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