

CULLING HARES TO BOOST RED GROUSE



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MOUNTAIN HARES

- Widespread across Scotland
- Closely associated with heather moorland managed for red grouse shooting
- Important game species on some estates
- Influence upland habitat through grazing pressure
- Important food source for raptors
- Indicator species for upland environment
- UK Biodiversity Action Plan Priority species
- On Annex V of the EC Habitats Directive

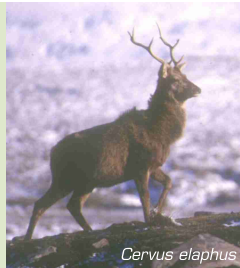
THREATS TO MOUNTAIN HARES

- Habitat loss and fragmentation
- Culling
 - To reduce ticks and Louping-ill virus
 - Increase of 32% taken in 2005/06 compared to 1995/96¹
 - 50% of hares taken in 2005/06 done so for tick control¹

CONSEQUENCES OF CULLING ON MOUNTAIN HARE CONSERVATION STATUS AND THE UPLAND ECOSYSTEM UNKNOWN

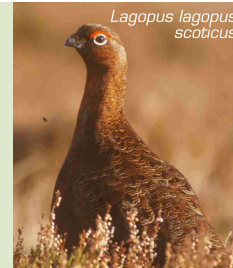
RED DEER

- Important tick host
- No clinical symptoms of LIV
- Cannot transmit LIV



Louping-ill virus (LIV)

Tick-borne viral pathogen



RED GROUSE

- Tick host
- Suffer high mortality from LIV
- Can transmit LIV

SHEEP

- Tick host
- Suffer high mortality from LIV
- Can transmit LIV
- Can be vaccinated
- Act as 'tick mops'



MOUNTAIN HARE

- Important tick host
- No clinical symptoms of LIV
- Transmit LIV between co-feeding ticks
- Act as disease reservoir?

DOES CULLING MOUNTAIN HARES IMPROVE RED GROUSE NUMBERS BY REDUCING TICKS AND LIV PREVALENCE?

EVIDENCE FOR

Experimental reduction in mountain hares



Reduced tick burdens and LIV seroprevalence in red grouse²

EVIDENCE AGAINST

1. Simultaneous use of 'tick mops'²
 → Confounds affect of hare culling
2. Red deer absent²
 → Alternative tick host (deer) would maintain ticks and LIV in absence of hares³. Red deer common on many grouse moors.

Experimental reduction in mountain hares



Increase in red grouse density²

1. Increase not significantly different from control site where hares were not killed².
2. Fluctuating populations make interpretation of short term changes in grouse density difficult.

CONCLUSION

Lack of conclusive evidence that culling mountain hares improves red grouse numbers, especially in presence of other tick hosts⁴