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NATAL DISPERSAL OF MOUNTAIN HARE LEVERETS IN SCOTLAND: THE EFFECTS OF HARVESTING

NATURAL ENVIRONMENT RESEARCH COUNCIL | University of Glasgow

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INTRODUCTION

- The mountain hare is a traditional game species common on Scottish grouse moor
- Recently, an increase in shooting hares for tick and louping ill virus (LIV) control has emerged [1]
- Mountain hare populations exist in a fragmented landscape [2]
- Such populations can be described by metapopulation dynamics whereby subpopulations exist in patches of suitable habitat embedded within a matrix of less suitable habitat
- Subpopulations are linked by migration making dispersal, and any factors affecting it, vital for population viability [3]
- The 'vacuum' effect (increased dispersal into lower density hunted areas) can also be an important mode of population recovery [4]
- Therefore, dispersal is potentially very important for mountain hare population viability

HOWEVER

- Dispersal of mountain hares is poorly understood and the effects of harvesting unknown


Mountain hare leveret

STUDY SITE

~30km^2 grouse moorland in the Cairngorms National Park split into 2 blocks:

- **Control -** No hares shot
- **Harvested -** Traditional hare shooting

METHODS

- Leverets live trapped and fitted with radio tag
- Locations recorded 4 days per week using radiotelemetry
- Dispersal occurs if leveret moves more than the diameter of average adult female homerange (95% MCP) (267m ± 195m)

RESULTS

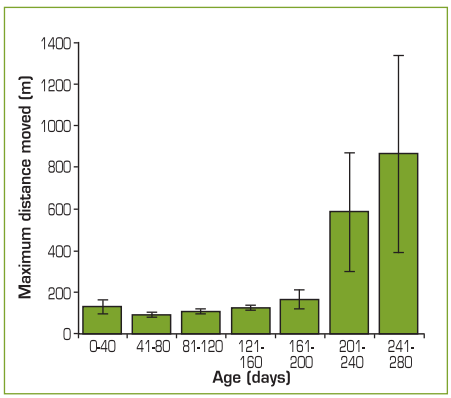

Figure 1: mean distance moved (± standard error bars) by leverets with age.

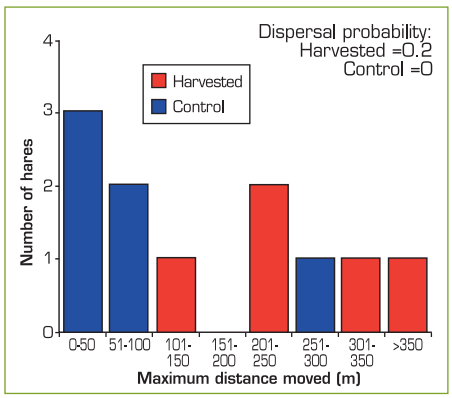

Figure 2: maximum distances moved by leverets from harvested and control populations. Dispersal probability is greater in the harvested population.

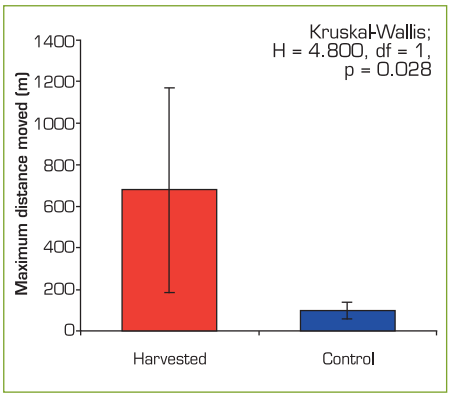

Figure 3: mean maximum distance moved (± standard error bars) of leverets from harvested and control populations. Maximum distance moved is significantly greater in the harvested population.

CONCLUSIONS

- Movement increases with age, with greater distances moved after 200 days when one leveret dispersed >2km
- Overall, dispersal probability and distance are low
- Localised hare culls could further fragment populations
- If distance between subpopulations exceeds dispersal distance, dispersal may become less likely with currently unknown implications for metapopulation viability

BUT

- Dispersal is greater in the harvested population
- Dispersal processes could be important in the dynamics and persistence of mountain hare populations
- Effects of harvesting on dispersal may influence efficiency of culls for tick and LIV control

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