CPRE PEAK DISTRICT AND SOUTH YORKSHIRE BRANCH

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RESPONSE TO EXAMINING AUTHORITY'S WRITTEN QUESTIONS 2

DEADLINE 16th March 2022

Question 12.8 - Appendix A

Roadkill Assessment for Peak District Mountain Hares (Lepus timidus)

by

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Roadkill assessment for Peak District mountain hares (*Lepus timidus*)

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Abstract

The isolated mountain hare population in the Peak District has been recently estimated as approximately 3,500 individuals. This is below sustainable levels.

Opportune road surveys during 2018 to 2020 recorded more than 100 roadkill individuals annually. Surveys were infrequent and underestimated incidence.

The overall estimate of roadkill of mountain hares is ~200 individuals per year.

Hares are nocturnal. Roadkill occurs more frequently during twilight or night hours. Hares were observed to arrive at roads and linger inquisitively.

Most roadkill occurred during the spring mating season from January to May. Most deaths were adults, however roadkill leverets were found onwards through the summer. Roadkill was least frequent during autumn.

Roadkill represents the loss of a substantial portion, estimate ~10%, of the adult breeding population. Roadkill also represents a serious animal welfare issue. However a large portion of the population that live in proximity to roads, do succeed in crossing roads and surviving. Consequently any increase in traffic volumes may lead to proportionate increases in roadkill mountain hares.

Mitigating against roadkill should concentrate on driver education. However more effective mitigation may be provided by severely reducing speed limits at selected hotspots, 1 - 2.5 km in length, with very little increase on overall driver journey times.

Introduction

The mountain hare (*Lepus timidus*) population of the Peak District was estimated as 3,500 individuals (Bedson PhD Thesis), occupying a range of ~350 km^2 of uplands. One previous estimate made in the year 2002 of 10,000 individuals was found to be incorrect and upon reanalysis of same data, also restated as ~ 3,5000 individuals. No inward migration is possible. The population is below sustainable limits, i.e. 4,000 individuals, typically for a medium-sized herbivore.

Road density and traffic volumes are known vectors which contribute to roadkill, adversely affecting animal populations. In the Peak District, mountain hares are frequently killed on roads at high moorland locations Consequently the frequency of roadkill was recorded, with intention of inclusion in longer term population viability modelling.

Methods

Data inputs

From 2018 to 2020 I conducted tours of the road network, to record roadkill of mountain hares. This was opportunistic and not systematic. Some roads e.g. A628 Woodhead were very busy and it was likely some roadkill hares were missed. Heavy rain tended to wash away carcasses within 3 days. Some hare carcasses were obliterated so it was not always possible to identify which species of hare had been killed. Therefore observations were also recorded for brown hares (*L. europaeus*), though

these were <10% of all hares. The numbers recorded were likely to be an under-representation of actual roadkill by at least 50%. Roadkill locations were mapped in ArcGIS (ESRI, USA). Roadkill numbers by month were plotted as simple column charts.

Results

Roadkill was recorded during 2017 to 2020 and subsequently estimated as ~ 200 hares per year, a substantial portion of the adult population (Figure 1, 2 and 3). The area with highest incidence of roadkill was where A57 Snake Summit and the Pennine Way meet. Hares were seen to actively visit the roads and follow vehicles (Figure 4). Separate trail camera studies showed that hares behave with curiosity and intelligence, examining fences and posts. Hares do not lick salt off roads. Hares are sometimes attracted to vehicle headlights.

Discussion

In the Peak District, roadkill of mountain hares has a substantial adverse effect on numbers, particularly affecting adults during the breeding season, which increases the pressure on a small population below viable thresholds. Roadkill is also a severe animal welfare issue.

Effect of increased traffic on A628 and A57

Is is known that the present level of roadkill does not take every mountain hare that visits the roads. The population in some of these areas can be buoyant and many individuals cross the roads and escape casualty.

It is difficult to attribute a direct relationship of increasing traffic volumes, to increased roadkill. If traffic volumes were to increase by, for example 50%, it is entirely possible that roadkill might increase by 50% also.

Mitigations

Mitigation attempts through attempting to provide overpasses or underpasses, may be counter-productive and serve to attract hares, providing shelter during poor weather, and causing them to linger at road locations. Similarly, installing fencing at key locations may be difficult. Fences would need to be totally impermeable: hares can jump to a height of 1.2 m or higher. Fences might serve to attract hares also.

Providing education to drivers, may increase their awareness of the likelihood they may accidentally kill a mountain hare. In particular, reducing driving speeds during twilight hours and at night may be helpful. It would be constructive to educate the public that during spring time, mountain hares roam at night and investigate the roads. Implementing road signs to warn the public about wild animals, may encourage some motorists to reduce their speeds. However many motorists and motorbike riders would ignore these warnings.

The most effective mitigation against mountain hare roadkill may be to introduce a 20 mph speed limit with speed cameras, at high roadkill locations. These stretches of road are mostly short: only 1,000 to 2,500 metres in length. This would increase driver journey time by perhaps 30 seconds, whilst annually saving ~ 200 hares per year from death. If one were to introduce, for example, a 20mph speed limit along the key roadkill areas of A57 Snake Pass, this could contribute to greatly reduced mountain hare roadkill, whilst only reducing driver journey times between Sheffield and Glossop by around 20-30 seconds.

Reducing driver speeds on the A628 Woodhead Road may be more challenging socially as this road is frequented by heavy goods vehicles. Nonetheless education of commercial organisations may help them to recognise they share responsibility for contributing to safe passage for wildlife.

It is also notable that the area of A57 Snake Pass and Pennine Way junction hosts a large amount of parked cars. Considerations of building a car park here might be unhelpful. Any car park infrastructure might serve as attractant to mountain hares and lead to their being habituated to humans. This would represent a kind of "Yellowstone Park" effect: a reduction of their natural evasive behaviour.

Acknowledgments

This research was funded by the People's Trust for Endangered Species, the Hare Preservation Trust, the British Mountaineering Council, Penny Anderson Associates, South-West Action for Hares, Queen's University Belfast. Considerations for roadkill mitigations were shared with Dr Sarah Perkins, Senior Lecturer at Cardiff University and head of UK roadkill investigation project.

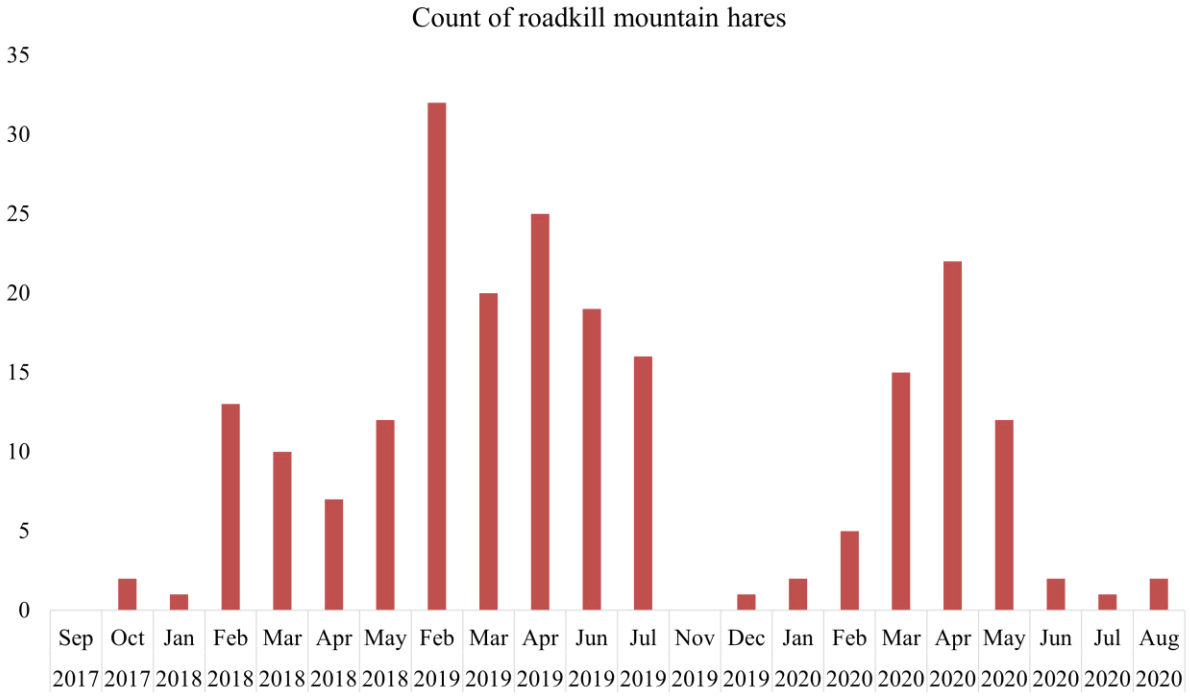

Figure 1 Number of mountain hares killed each month. Surveys were infrequent, opportune and under-recorded total amount of deaths. The lower numbers of 2020, compared with 2019, may be a function of an overall lower population size in 2020.

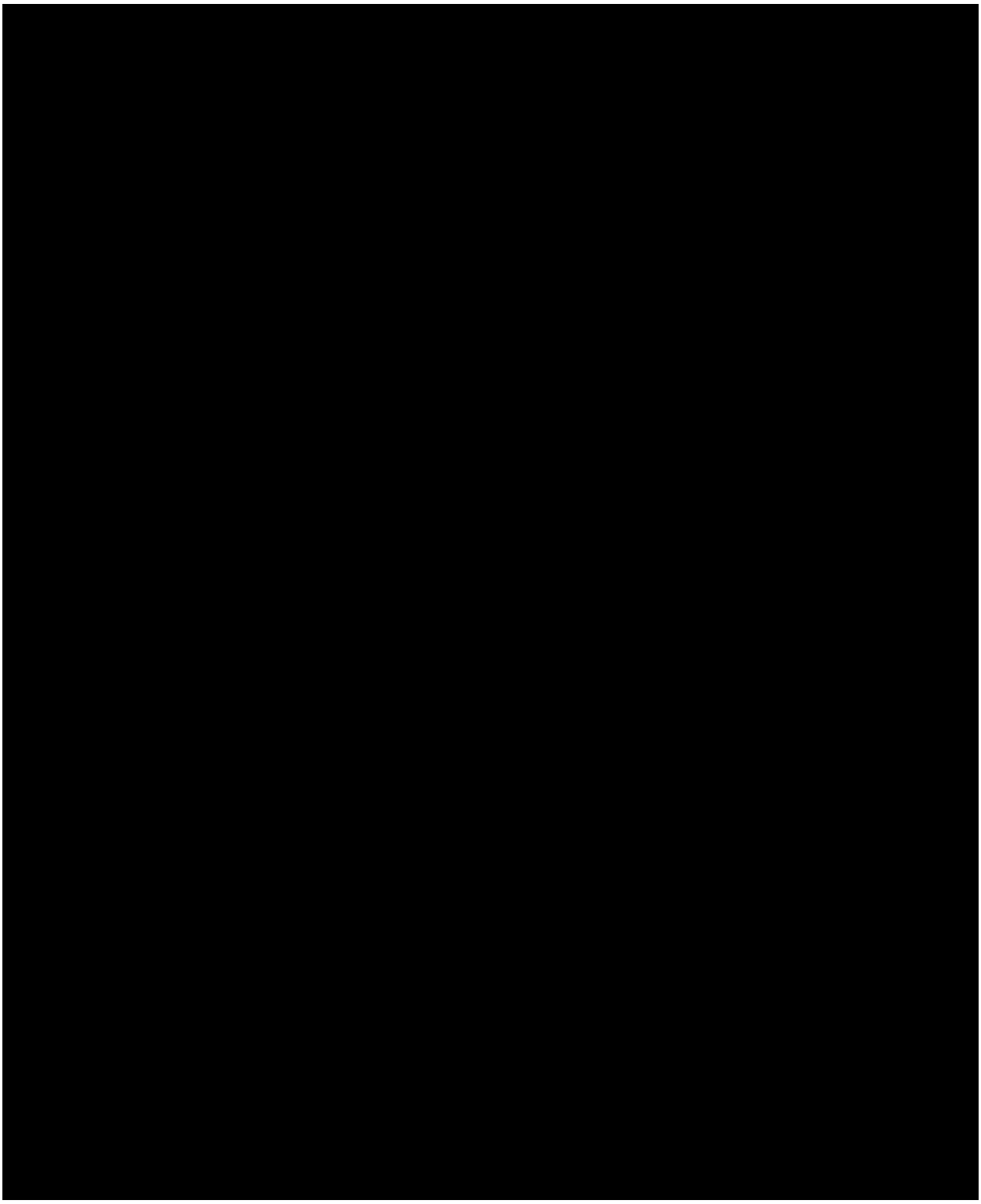

Figure 2 a) Photos of mountain hare and brown hare roadkill 2017

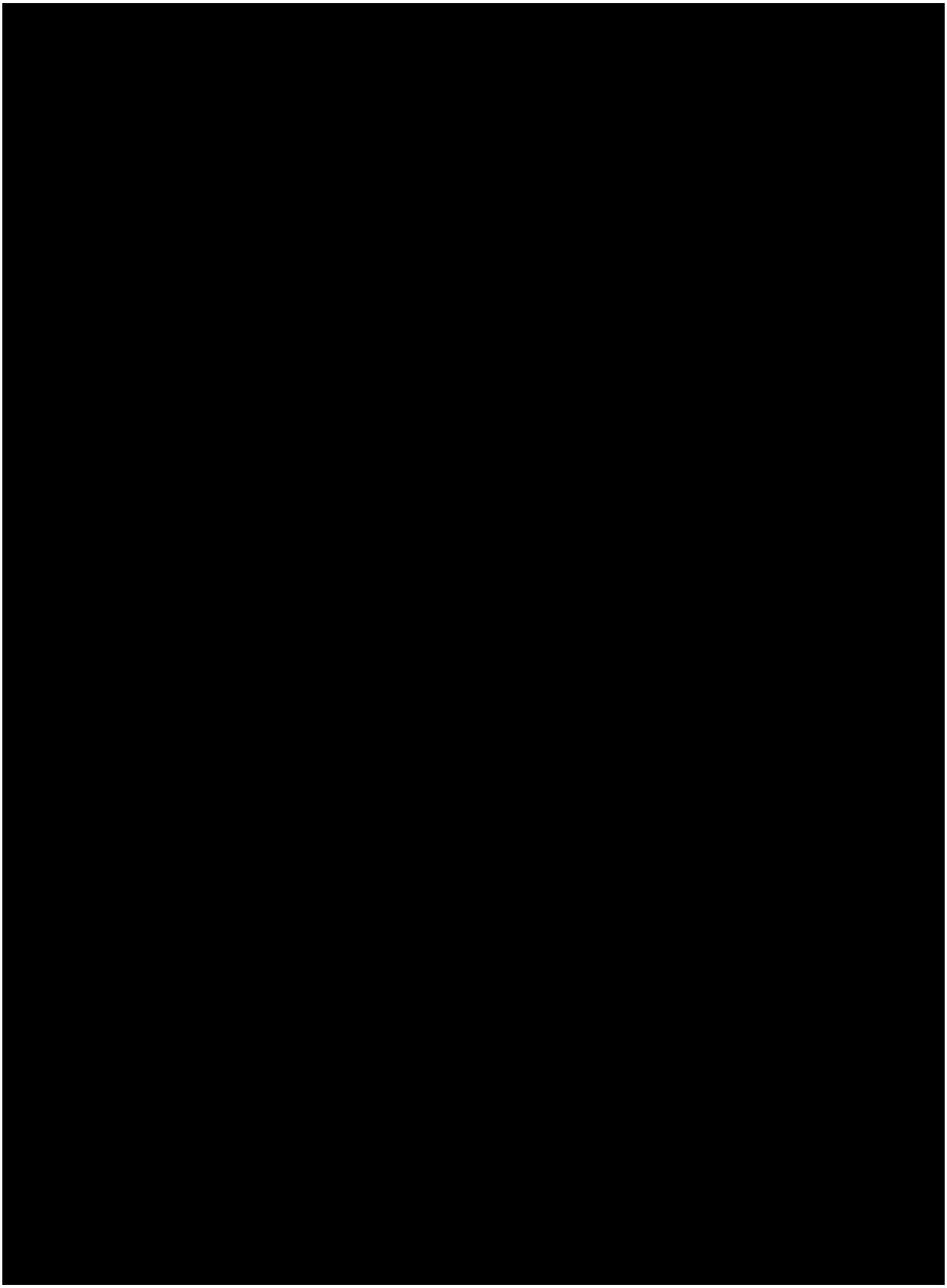

Figure 2 b) Photos of mountain hare and brown hare roadkill 2018

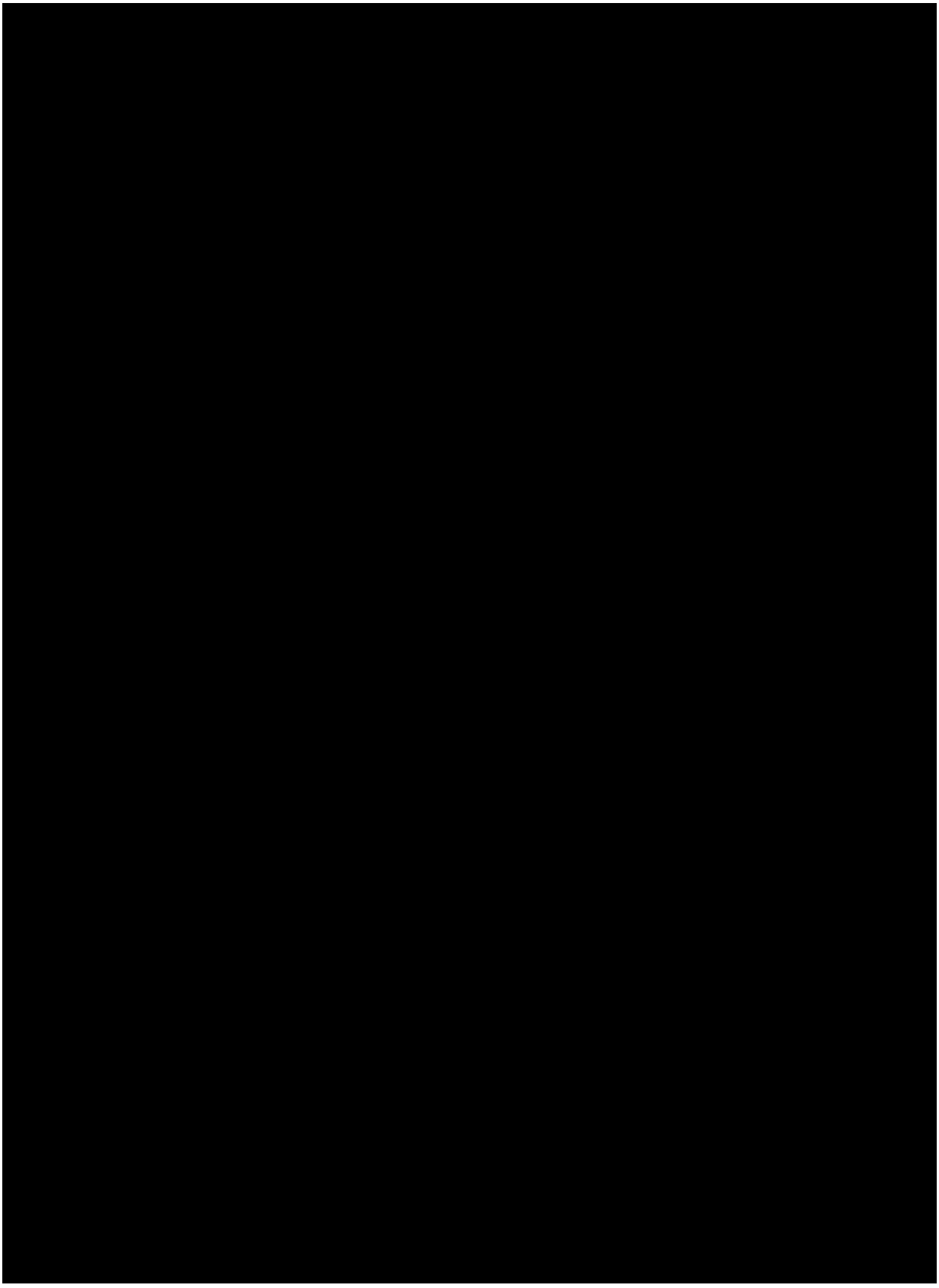

Figure 2 c) Photos of mountain hare and brown hare roadkill 2019

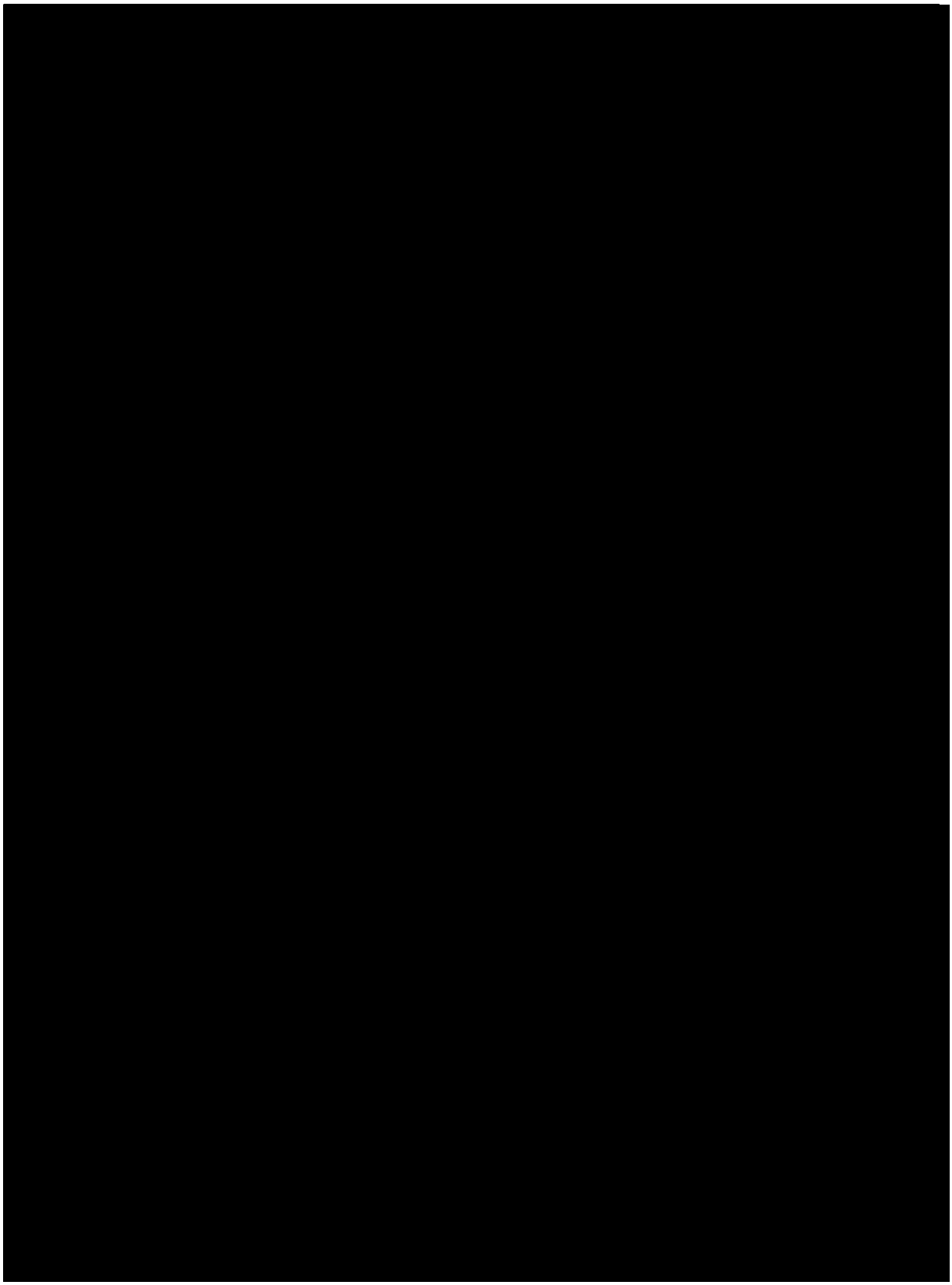

Figure 2 d) Photos evidence of mountain hare and brown hare roadkill 2020

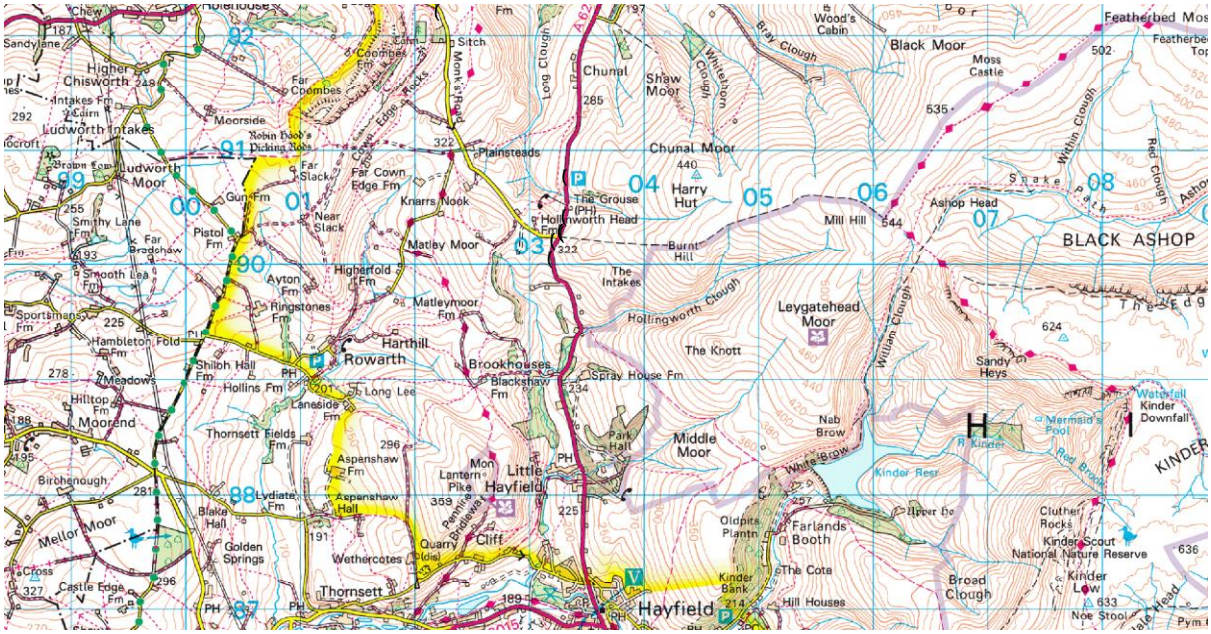

Figure 3 a) Roadkill site A6024 Glossop Road at Chunal (minimum 6 dead hares 2017 to 2020)

Grey dots are mountain hare and brown hare roadkill - as appear on all maps for Figure 3.

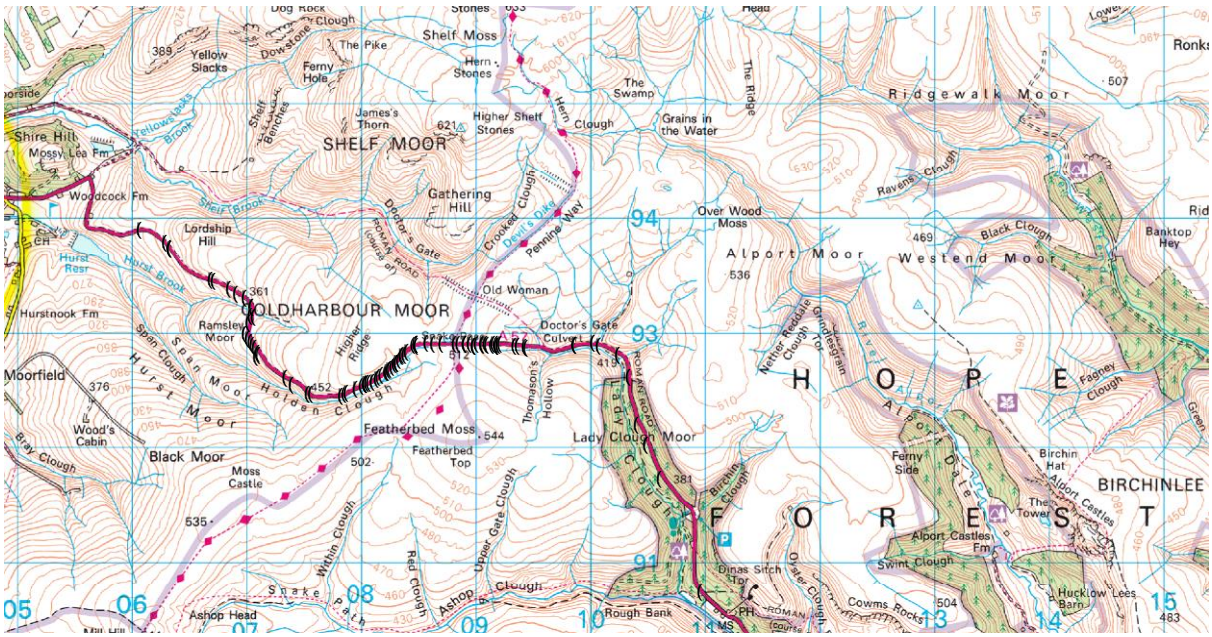

Figure 3 b) Roadkill site A57 Snake Pass (minimum 106 dead hares 2017 to 2020)

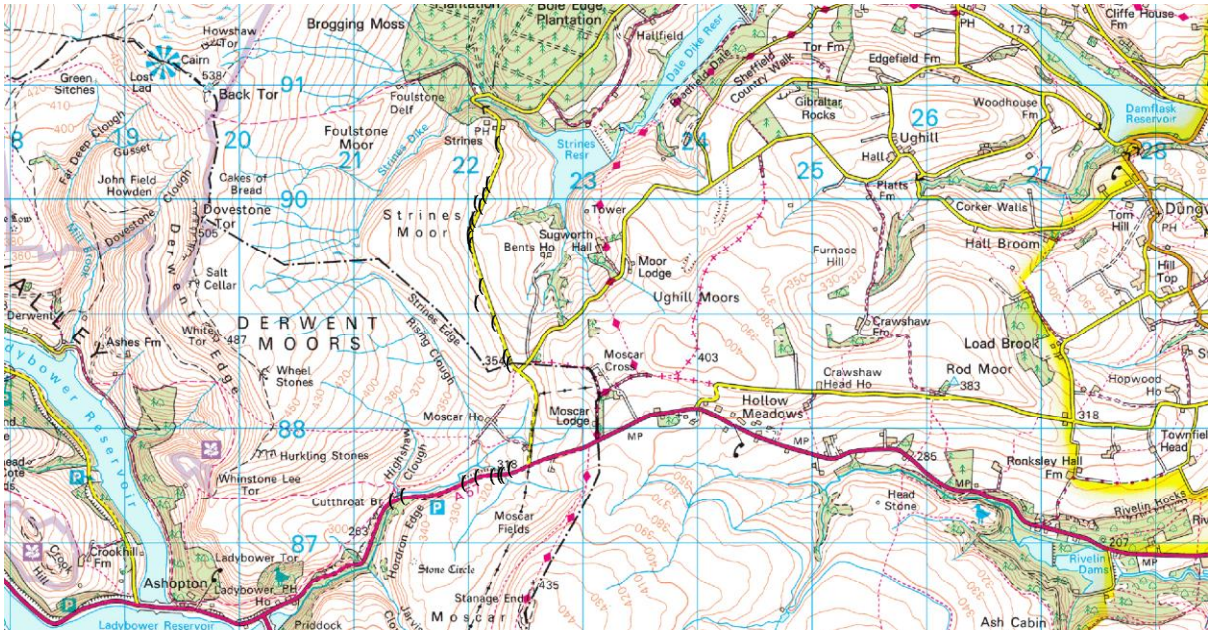

Figure 3 c) Roadkill site A57 Moscar (minimum 8 hares) and Strines Road (minimum 18 dead hares 2017 to 2020)

Figure 3 d) Roadkill site Strines Road (minimum 14 dead hares 2017 to 2020)

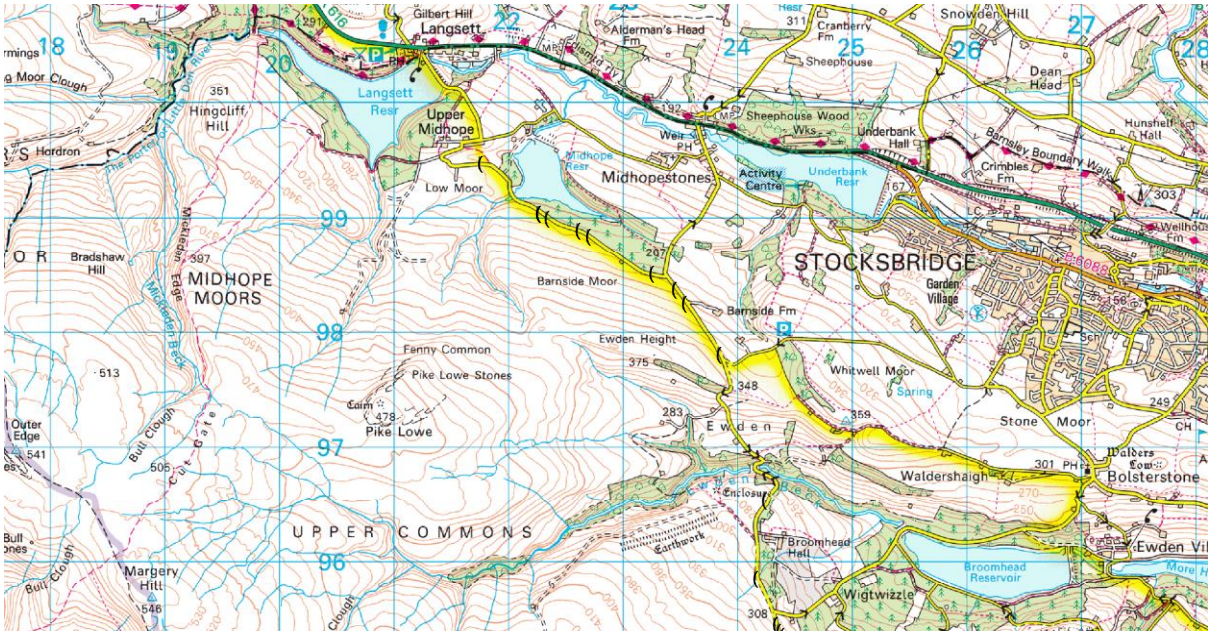

Figure 3 e) Roadkill site Gilroyd Road (minimum 9 dead hares 2017 to 2020)

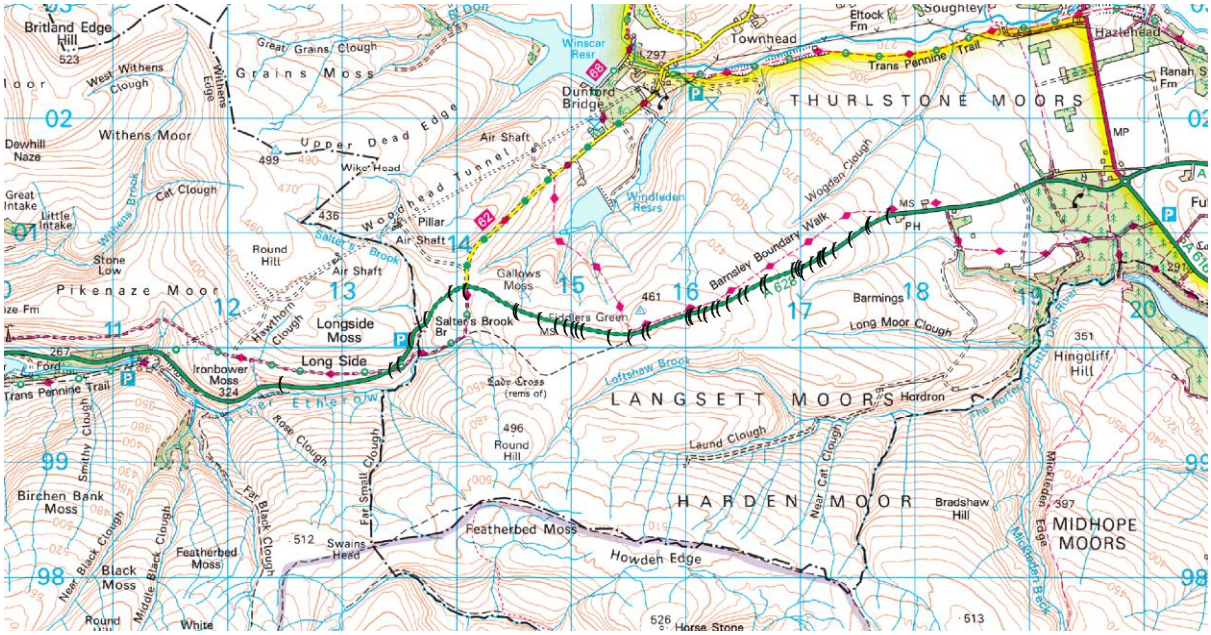

Figure 3 f) Roadkill site A628 Woodhead Pass (minimum 44 hares 2017 to 2020)

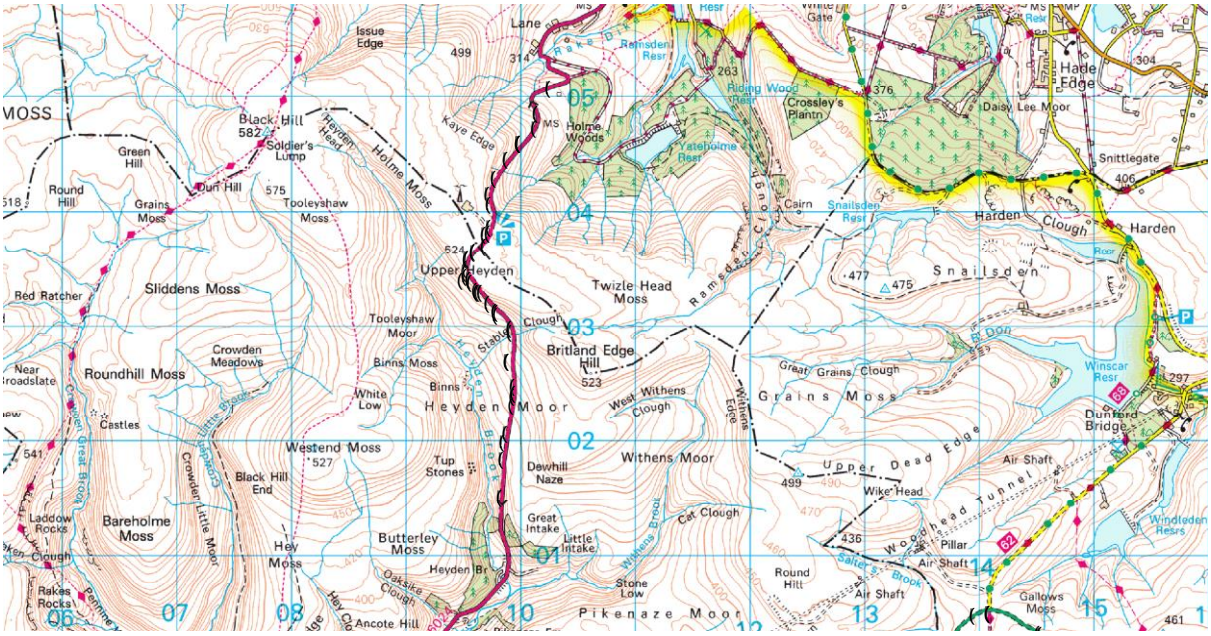

Figure 3 g) Roadkill site A6024 Holme Moss Road (minimum 43 dead hares 2017 to 2020).

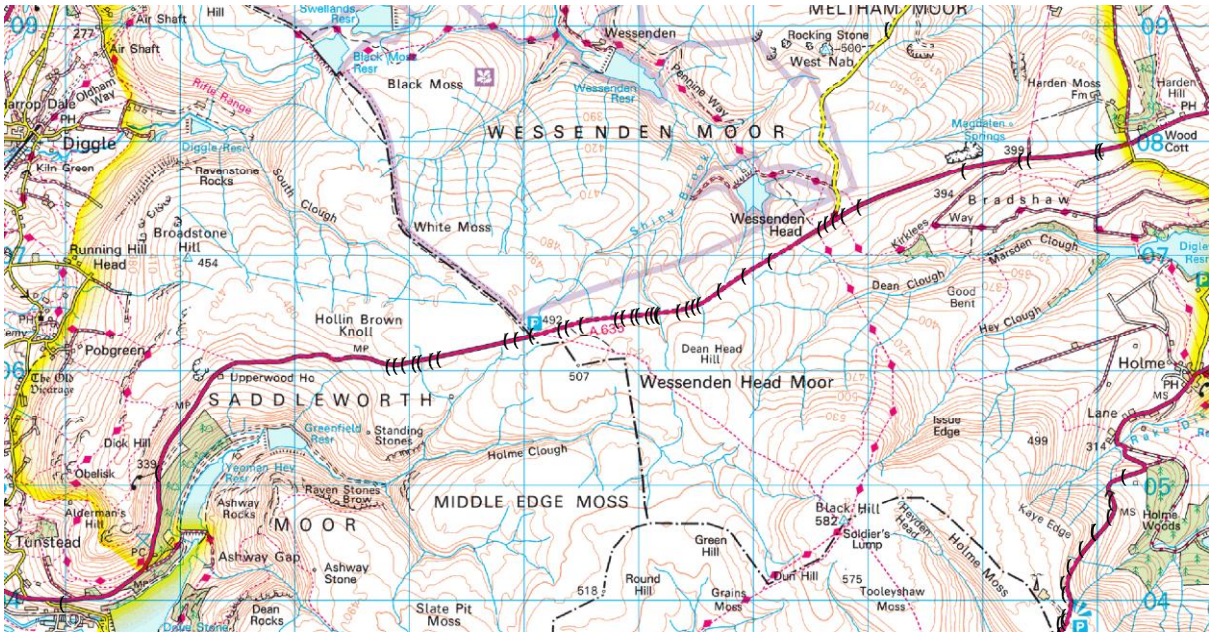

Figure 3 h) Roadkill site A635 Saddleworth Road (minimum 39 dead hares 2017 to 2020).

Figure 4 Photographs of mountain hares visiting the A6024 Holme Moss road at night