

Wildlife Warden, Conservation Manager, Fire Fighter, and Educator: **The Grouse Moor Gamekeeper in England in the Twenty-First Century**

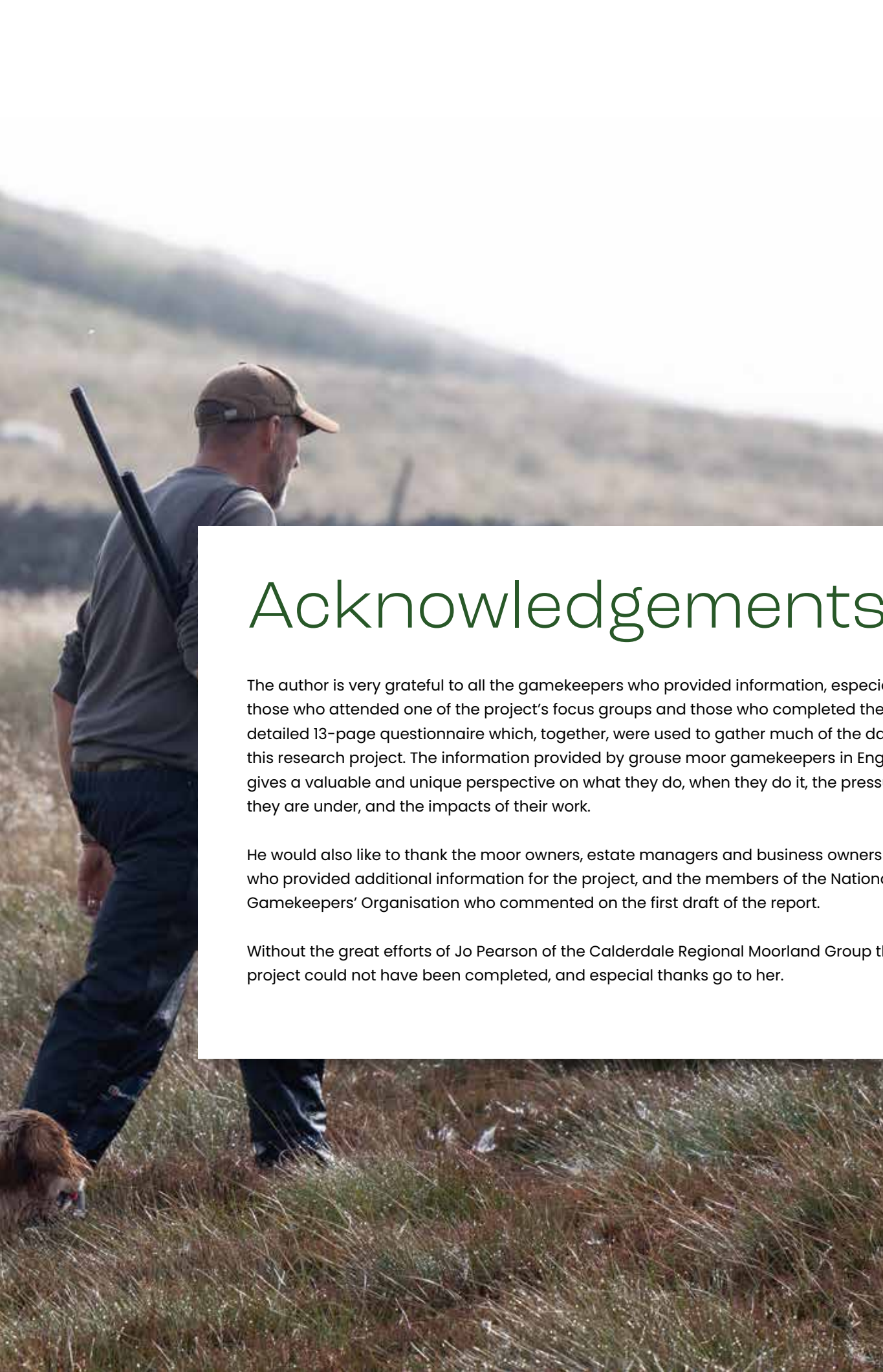


A report commissioned by
The Regional Moorland Groups
regionalmoorlandgroups.com and the
National Gamekeepers' Organisation
nationalgamekeepers.org.uk

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Organisation

Keeping the Balance™



Acknowledgements

The author is very grateful to all the gamekeepers who provided information, especially those who attended one of the project's focus groups and those who completed the very detailed 13-page questionnaire which, together, were used to gather much of the data for this research project. The information provided by grouse moor gamekeepers in England gives a valuable and unique perspective on what they do, when they do it, the pressures they are under, and the impacts of their work.

He would also like to thank the moor owners, estate managers and business owners who provided additional information for the project, and the members of the National Gamekeepers' Organisation who commented on the first draft of the report.

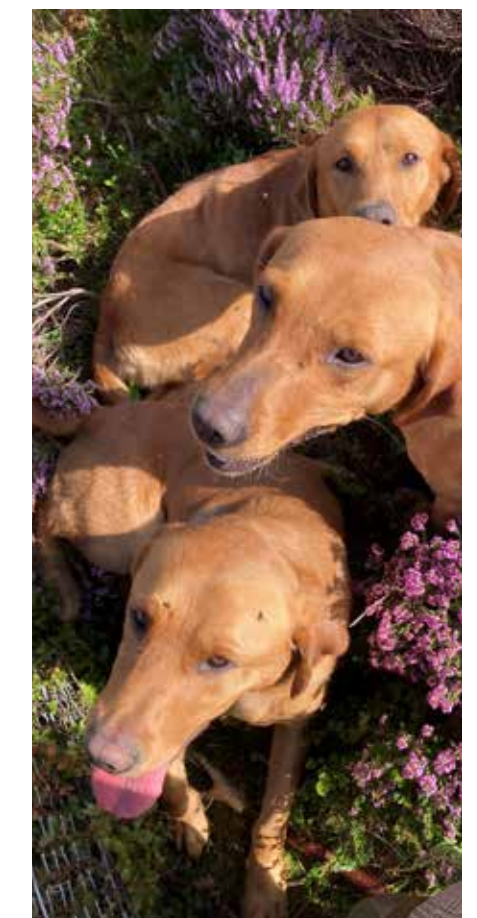
Without the great efforts of Jo Pearson of the Calderdale Regional Moorland Group this project could not have been completed, and especial thanks go to her.

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Foreword

Reading this report, it is hard to believe that the simple job title of ‘gamekeeper’ can encompass everything that Professor Denny has found it to be. But anyone who has done the job of a gamekeeper in the uplands of England will recognise the many hats they wear, the duties they carry out and the responsibilities which they shoulder.

The job on its own is hard enough, although at a brief glance, it might not seem to be the case. That is why this study, which is the first to collect detailed information from grouse moor gamekeepers themselves about their many and varied tasks, is so very important.

An upland gamekeeper’s role, explained basically, is to manage the flora, landscape and wildlife of the moors in a way that promotes the biodiversity of this unique habitat and enables wildlife – including red grouse – to flourish. Unlike some other bird species which can be bred in captivity and then released, red grouse tend only to breed successfully in the wild, meaning that the perfect habitat is vital for their survival. Managing habitats and legal control of predators allows red grouse to flourish and, in the most successful years, produce

a shootable surplus which enter the food chain as game meat, and are in great demand from the food industry as high-end food products.

Although habitat and wildlife management is the primary role of an upland gamekeeper, as this report outlines, the tasks and responsibilities that come with the job go far and beyond this.

Grouse shooting is carried out for only four months of the year; that is, if there are surplus wild red grouse to allow shooting at all. But the job of the upland gamekeeper is constant, and year-round.

The title of this report *Wildlife Warden, Conservation Manager, Fire Fighter and Educator* goes some way to explaining the extent of the role; but it would be impossible to encompass the job in a single sentence – or even paragraph. Public interaction is a huge part of the role – both positive, and negative. Professor Denny found, for example, that over the last year, gamekeepers had helped people in distress on almost 2,000 occasions. Conversely, negative interactions with the public also

occur. The report found, shockingly, that on average an upland keeper is physically assaulted every 12 days.

The job is far from simple. As well as engaging with the thousands of members of the public who visit the uplands of England each year, keepers also act as spokesmen on visits to local schools and shows, help raise money for charity, meet with policy makers and liaise with conservation organisations, wildlife trusts and neighbouring landowners – which may sometimes be one and the same.

The duties required spread far beyond habitat and wildlife management. In the summer months, wildfires are a very real danger, and keepers often sit out late into the evening ‘watching’ for signs of fire. When fires do break out – either on a keeper’s own estate or on neighbouring land – they are often first on the scene, and have the specialist training and equipment to fight them. Managing land for fire dangers – by removing excess vegetation and scrub and creating fire breaks to stop fire in its tracks – is another vital part of the job which helps everyone in the local area, as well as protecting the local wildlife and biodiversity. As Professor Denny found during his study, gamekeepers also help to train members of the Fire & Rescue Service in wildfire management.

Despite all this, gamekeepers still often end up at the sharp end of conflict and abuse. This can come in the form of rural crime – there were 654 incidents of damage to estate property and 336 of poaching reported in the 12 months to October 2024 – abuse on social media, or even conflict with policy makers and other landowners over differing land management strategies. It can be a stressful and mentally draining job. But it is also a rewarding one, with the study highlighting a variety of achievements of which upland keepers were proud, from educating children and the public to increasing raptor and wader numbers on their estates.

As Professor Denny has outlined in this report, the economic, environmental and social benefits that gamekeepers deliver through their work are manifold. Extrapolating from the 58 moors covered by this study, Professor Denny estimates that English grouse moors have an annual expenditure of £121 million in years when grouse shooting can go ahead. This is a phenomenal figure which highlights the high-value tourism that is grouse shooting.

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As for the other benefits, some brief figures include the fact that over the 58 moors surveyed alone, the total area of moorland improvement measured at over 186,000 acres, which includes peatland restoration and rewetting. This is over only the 58 moors questioned out of the 140 that the Regional Moorland Groups represent, so the true figure will be many times higher.

Although the Regional Moorland Groups exist to empower and enable isolated rural communities, providing a single voice to enable those communities to co-ordinate knowledge and share learning, the National Gamekeepers’ Organisation (NGO) is the representative body for gamekeepers, there to promote, improve and protect gamekeeping in the UK. Together, we hope that this report will make a valuable contribution to the public understanding of the importance of upland gamekeepers.

On behalf of the Regional Moorland Groups and the NGO, we would like to thank every keeper who took time out of their busy schedule to fill in the questionnaires and enabled this report to come into being.

**Jo Pearson, Co-ordinator,
Calderdale Moorland Group**

**Ian Sleightholm, Chair,
NGO Moorland Branch**





Executive Summary

This study gathered data from gamekeepers working on 58 grouse moors in England, a representative sample of the members of the Regional Moorland Groups (RMGs), which varied greatly in terms of size, number of gamekeepers employed, and number of shooting days offered. It is the first study to gather detailed information from grouse moor gamekeepers about what they do, and then identify the economic, environmental, and social impacts of their work. It is a uniquely detailed study and, it is suggested, makes a valuable contribution to our understanding of the role and importance of grouse moor gamekeepers in England.¹

Gamekeepers do not have a single, simple role. Rather they must be skilled educators and communicators, wildlife wardens, fire fighters, conservation managers, planners and organisers, first-aiders, rescuers, and managers of people. While carrying out these tasks they can be subject to insults, threats and assaults. Being an effective gamekeeper requires a wide range of personal and professional skills and involves extensive and continual training.

Gamekeepers in this study hosted 360 separate visits to their moor between October 2023 and October 2024, with conservation organisations being the main visitors. They attended 539 local and regional events during the same period to talk about what they did. Gamekeepers are in constant liaison with countryside and conservation groups, Natural England, and research organisations. The work they do is constantly discussed, shared, and reviewed with these groups.

All moors covered by this study carry out regular and frequent surveying and monitoring of animal species, and diseases and parasites. Over half the moors in the sample had bought wildlife monitoring equipment in the last 12 months, and 40% employed specialist external organisations to carry out surveys. Gamekeepers know the flora and fauna of their moor.

The economic impact of the 58 moors is significant, especially as most of the expenditure generated is spent within 20 miles of a moor, in areas that are mainly rural and often remote. Calculations of indicative expenditure show that:

- The moors spend at least £7.4 million with contractors (especially those who do ground maintenance) a year, *irrespective of whether grouse shooting takes place.*
- When grouse numbers permit it (typically in three years in every five), the 58 moors collectively offer c. 1,000 days of shooting p.a.
- The annual amount of money people spend so they can shoot grouse is c. £37 million. In addition to expenditure on shooting, people involved in grouse shooting stay in hotels, buy meals, visit shops, and use garages. The total annual expenditure of these associated costs is c. £2.8 million.
- Thus, the 58 moors generate c. £48.7 million of economic activity a year (including the c. £1.7 million paid to casually-employed beaters, pickers-up and other ‘support staff’).
- Grouse shooting is a major contributor to local rural economies.

There are 140 moors that are members of the RMGs. An extrapolation of the economic

impacts delivered by the 58 moors covered by this study suggests that these 140 grouse moors have an annual expenditure of c. £121 million, when grouse numbers permit shooting. This sum includes the c. £4.1 million paid to support staff.

Grouse shooting should be viewed as very high-value tourism; no other leisure activity taking place on England’s moors generates anything like this economic value.

The environmental management work that gamekeepers carry out involves managing vegetation, improving water retention and carbon sequestration, controlling bracken cover and tick numbers, wildfire management (on their own and on adjacent ground, as a beneficial buffer zone), disease monitoring and control, predator control, and surveying and monitoring flora and fauna. Each year the 58 moors collectively actively manage the flora in an area the size of Bedfordshire,² and since 2021 an area bigger than Middlesex has been improved in some way. The 140 RMGs are collectively actively managing an area the size of Derbyshire and improving the habitat on an area the size of Berkshire.

REFERENCES

¹The study is confined to grouse moors in England.

REFERENCES

²For the sake of comparison, the area of land actively managed by gamekeepers surveyed is approximately equivalent to 170,829 football pitches, or 19 times the size Manhattans, or 381 times the area of the City of London.



£37 million

spent to shoot grouse

A few hundred gamekeepers are making an essential difference to biodiversity on very large areas of land.

Gamekeepers are recognised by the Fire & Rescue Service, and conservation organisations, as having expert moorland fire knowledge, along with often the best experience, expertise and access to modern equipment to deal with wildfires.

Gamekeepers constantly liaise with local farmers, graziers and landowners to agree action to improve the management of the moorland environment. The most frequently cited outcome of this joint action is reduced predation of livestock, especially lambs. The other outcomes are improvements to vegetation, better disease control, and reduced risk of wildfire.

The results of the work gamekeepers do in managing the environment, which is often closely monitored by external agencies, on the bird life of the moor is dramatic and crucial for the survival of many, increasingly rare, species. Since 2021 the 58 moors covered by the study have enabled c. 12% of the UK curlew population, c. 9% of the lapwing population, and over 10% of the golden plover population to fledge. These are very high numbers for a relatively small total area. Over half of the UK's red-listed curlews, and over 40% of its red-listed lapwings are found on RMGs' land. Without the work of grouse moor gamekeepers, the continued existence of these and other bird species would be threatened.

The 140 RMG moors cover an area nearly four times bigger than the combined area of the 221 National Nature Reserves in England, and a very much greater area than the 82 RSPB reserves in England. It is estimated

that approximately 53% of the UK's curlew population and 42% of the UK's lapwing population are found on the English grouse moors covered by the RMGs. These moors are nationally, indeed internationally, important for birds, especially ground-nesting species.

Gamekeepers do not just care about grouse; they enable many species of waders, raptors and passerines to thrive. Gamekeepers are rightly proud of the environmental management they do, and the results they achieve on England's globally-important heather moorlands. The 140 moors that are members of the RMGs are making, and will make, an important contribution to England's 30by30 targets.

Although access to the moors does not depend on gamekeepers, the work they do maintaining paths and tracks, and the attractive and richly diverse flora and fauna they support, mean that millions of people are able to enjoy leisure activities on moors. These activities result in very large, but incalculable health and well-being benefits which result in significant savings to health budgets.

Some of the people who are involved in grouse shooting in supporting roles are lonely, or suffer from physical or mental ailments. These people typically benefit greatly from the company and exercise they gain on a grouse shooting day.

Gamekeepers are a constant presence on their moor. Therefore, they both help people in distress (over 1,500 in the last 12 months) and ask those people who are abusing the moor in some way to desist (over 27,000 in the last 12 months). Some keepers pay a heavy price for their efforts to address behaviour; threats and abuse are



common and, on average, every 12 days a gamekeeper working on one of the 58 moors is physically assaulted.

The work gamekeepers carry out to improve the breeding success of the red grouse, one of the only nine bird species endemic to the UK, has a major and beneficial impact on the economies of many rural areas of England and is vital for the biodiversity of its globally-important heather moorlands, not least for ground-nesting birds.

The work of these gamekeepers, and the impacts they have, should be more widely known, and celebrated.



Introduction

Moorland is a type of habitat found in some upland areas of the UK. It is characterised by low-growing vegetation on acidic soils.³ Generally, moorland refers to highland and high rainfall zones. Moorland and heathland are the most extensive areas of semi-natural vegetation in the UK. A widely-used definition for moorland and upland areas is land categorised as ‘Less Favoured Areas’, a European classification for socially and economically disadvantaged agricultural areas.

Upland regions are a nationally significant resource for people in the UK; most have landscape protection status (e.g. Area of Outstanding Natural Beauty), special conservation designations (e.g. Sites of Special Scientific Interest and Special Protection Areas), and separate local governance arrangements (e.g. National Parks) (Williams 2011). In addition to game production and shooting, activities that take place in moorland areas are wide-ranging: from agriculture (grazing of animals) to forestry; renewable energy to water catchment management; and quarrying to recreation (Natural England, 2009). Ownership of moorland areas of the uplands is not always straightforward: more than one person may have the right to use the land

for different purposes (such as grazing), and moor owners seldom confine their income-generating activities to just shooting, leading to multiple land uses, which this report refers to as ‘integrated moorland management’. Shooting estates and water companies own a great deal of moorland in England and therefore manage it with conservation in mind (Gaskell *et al.* 2010).

Many moors in the north of England are managed in a way that supports the red grouse (*Lagopus scotica*)⁴ to survive and multiply with the aim of producing a surplus that can be shot during the annual grouse shooting season, and this management is carried out by gamekeepers. According to the National Gamekeepers’ Organisation (NGO) there are about 3,000 full-time gamekeepers employed in the UK today, and a similar number that do the job part time.⁵ However, the position of ‘gamekeeper’ is not a single role, but a term used to describe at least four roles. *Stalkers* are gamekeepers who specialise in deer management and shooting; *lowland gamekeepers* mainly rear pheasants and red partridges and manage their habitats; *ghillies*, or river keepers, manage rivers for trout and salmon; and *upland keepers* manage moorland to support the red grouse.

This project focuses on the upland gamekeeper who looks after a grouse moor. Unlike the lowland keeper, the grouse moor keeper does not hatch gamebirds from the egg, or buy in young birds (either chicks or poults, aged between six and nine weeks-old) to rear in pens until they are old enough to be released into the wild. Instead the red grouse is predominantly a wild bird and attempts to breed them in large numbers in pens have been unsuccessful. Therefore, the grouse moor gamekeeper’s role is one of managing habitat and legally controlling generalist predators to give wild red grouse the best chance of successful breeding.

The post of gamekeeper dates back centuries and, in English law, dates to the 17th Century.⁶ However, there is widespread ignorance of what grouse moor gamekeepers do, both within the general public and, more importantly, within policy makers and conservation organisations. The literature that exists does not attempt to describe, let alone detail, what grouse moor gamekeepers actually do, and how often they do it, although occasionally mention is made of controlled burning, predator control and disease monitoring and

prevention (Thomson *et al.*, 2020; Tharme *et al.*, 2001; Sotherton *et al.*, 2009; Thompson and Wilson, updated).

Too often the grouse moor keeper is featured in national and social media as some form of villain, killing anything that is not a red grouse⁷ in order that bloated plutocrats can blast away at grouse that are ‘herded’ towards them. The views of many people have been (mis)informed by inaccurate, biased and dishonest media stories. Of course, this is not a new phenomenon; as far back as 1968 one author wrote: “It is, however, a sign of the times that so many inaccurate, derogatory or palpably ‘slanted’ references are made nowadays about field sports.” (Stanford, 1968). Even supposedly factual websites such as Wikipedia make basic errors about grouse moor gamekeepers. The photograph at Figure 1 has been given the caption, ‘Gamekeeper (left) with a shooter on a driven grouse shoot in the Highlands, ca. 1922.’⁸ In fact the person shown on the left of ‘the shooter’ is a loader.⁹ The gamekeeper will be supervising the line of beaters and could be over a mile away from the Gun.

Figure 1: The Incorrectly Captioned Photograph



REFERENCES

- ³ Moorland generally means uncultivated hill land, but also includes some low-lying wetlands such as Sedgemoor in south west England.
- ⁴ In 2024 the International Ornithological Committee (IOC) announced that it would recognise the split of Red Grouse and Willow Ptarmigan, with the former now set to become a British and Irish endemic species, see <https://www.birdguides.com/news/red-grouse-to-be-split-by-IOC/>
- ⁵ See <https://www.nationalgamekeepers.org.uk/about-gamekeeping>

REFERENCES

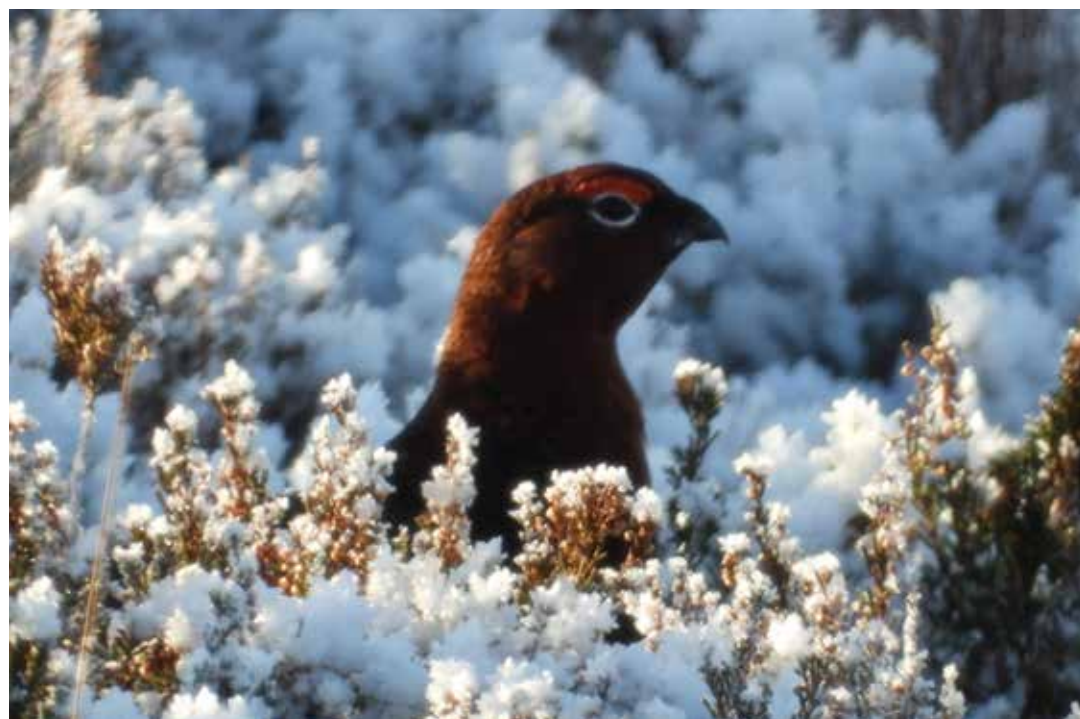
- ⁶ An Act of Parliament of 1683 allowed gentlemen above the rank of esquire to appoint gamekeepers ‘who shall have power within the manor to seize guns, nets and engines kept by unqualified persons to destroy game, and, by a warrant of the Justice of the Peace, to search in the daytime houses of unqualified persons upon the grounds of suspicion’ (Ruffer, 1977). At the beginning of the 18th Century parliament passed a follow up act allowing each estate to only employ one keeper, who was permitted for the first time to kill game as well as protect it. Estate owners had to pay a licence fee of one guinea to have a keeper, and an additional three guineas if he was required to kill game. Dogs also had to be registered at the price of 6/- for a pedigree dog, and 4/- for others. By an Act of 1798 a penalty of £50 was payable by any wilful omission from the list of dogs. A fine was also incurred if estate owners did not provide an accurate return of the number of servants they had, although this fine was only £30; an interesting comment on how servants were valued in the late 18th Century.
- ⁷ See, for example, Rogue gamekeepers killing birds of prey, says RSPB BBC news 23 October 2024.
- ⁸ See https://en.wikipedia.org/wiki/Gamekeepers_in_the_United_Kingdom
- ⁹ On some moors Guns only use one shotgun to shoot with (each shotgun holding two ammunition cartridges and therefore two shots). However, on many moors Guns use two shotguns and have loaders in the butt with them so they can quickly swap guns and fire while a covey of grouse flies over or near the line of butts. Loaders may live locally to the moor, but some Guns bring experienced loaders with them.

REFERENCES

¹⁰ See <https://www.regionalmoorlandgroups.com/> The RMGs are a group of voluntary, grassroots organisations from across the English Uplands, which aims to help people to understand and connect with the multiple benefits that come from moorlands.

¹¹ See <https://www.nationalgamekeepers.org.uk/> The NGO was founded in 1997 by a group of gamekeepers who felt that their profession was threatened by public misunderstanding and poor representation. The NGO Moorland Branch was set up in 1999 when the former Moorland Gamekeepers' Association (MGA) merged with the then two-year old NGO. Members of the MGA became members of the NGO and the longstanding MGA Patron, renowned conservationist David Bellamy, became Patron of the NGO overall.

¹² See https://en.wikipedia.org/wiki/List_of_endemic_species_of_the_British_Isles It is suggested that there are also 32 accepted sub-species restricted to Britain and Ireland see <https://www.birdguides.com/articles/taxonomy/our-forgotten-endemics/>



This report describes the findings of a research study into the role of the grouse moor gamekeeper in England. It was commissioned by the RMGs¹⁰ and the NGO¹¹ and is intended to inform policy makers, conservation organisations, educational institutions, and the general public of the many and varied tasks that grouse moor gamekeepers carry out, and the impacts these have on people and the environment. The fundamental principle of the RMGs is that the historic system of managing the uplands for livestock and game is valued both as a cultural heritage in itself, and as the primary delivery mechanism for a range of other public benefits: the protection of landscapes and habitats valued by society. The seven distinct RMGs set out to empower and enable isolated rural communities, running marginal micro-businesses, to deliver environmental benefits as part of their sustainable livelihoods. Thus, it maintains that gamekeeping and associated moorland management are fundamental components of England's historic and on-going culture. This proposition will be examined in this report. The NGO is a membership organisation founded in 1997. The NGO tries to educate and inform the public as well as to make sure that legislation impacting the work of gamekeepers is fair and workable.

At this stage, an important point must be made. The red grouse is a wild bird, subject to fluctuations in numbers due to the impacts of weather and disease. The great majority of grouse moors do not have enough birds to permit the sustainable shooting of a surplus every year; in fact most grouse moors expect to shoot only three out of every five years, some not even as often as that. However, the work of the grouse moor gamekeeper continues throughout the year, every year, even if there is no shooting. As this report will show, the grouse moor gamekeeper carries out tasks that are critical to the rich biodiversity of the English heather moorlands, as well as providing valuable economic and social benefits to their local area.

It is also important to note that the red grouse is one of just nine species of birds that is unique to the British Isles; the others being the pied wagtail, the Shetland wren, the Fair Isle wren, the St Kilda wren, the Scottish crossbill, the Scottish crested tit, and British long-tailed tit, and the white-throated dipper.¹² Importantly, the red grouse has much the largest population of the very few bird species that are endemic to the British Isles.

The Author



Simon Denny BA, MA, PhD, Holder of The Queen's Award for Enterprise Promotion

After leaving school Simon Denny served in the British Army from 1976 to 1986. He then worked for a major UK retailer until 1992 when he moved into higher education.

He worked at the University of Northampton (and its predecessor institutions) until 2018. At Northampton he initially specialised in designing bespoke development programmes for companies; three of these schemes won National Training Awards. He also designed, won funding for, and managed numerous large-scale projects aimed at helping disadvantaged people develop the confidence and skills necessary for employment, or self-employment. He became Professor of Entrepreneurship in 2007.

In 2010 he was granted The Queen's Award for Enterprise Promotion. He set up the Institute for Social Innovation and Impact, and from 2015 to 2018 was Executive Dean for Research, Impact and Innovation.

Since 2018 he has worked as an independent researcher and consultant. His clients have included the Ministry of Defence (where he has led four research projects into the impacts of the Cadet Forces between 2016 and the present), the Royal College of Nursing, the Motivational Preparation College for Training, the Cadet Vocational College, and the Uplands Partnership. He is an external associate of the Institute for Social Innovation and Impact at the University of Northampton.

He is a member of two Wildlife Trusts, is a keen birdwatcher both in the UK and abroad, and enjoys watching Northamptonshire County Cricket Club, gardening, fishing, and shooting.

Methodology

REFERENCES

¹³ The questionnaires seem to have been completed in a great hurry.

¹⁴ See <https://www.birdguides.com/>

¹⁵ See <https://www.gwct.org.uk/action-for-curlew/curlew-nest-locations/>

¹⁶ See, for example, <https://surveyplanet.com/>

¹⁷ See <https://www.calculator.net/>

¹⁸ See <https://www.qualtrics.com/>

At the start of this project a review of the existing literature on the role of gamekeepers on grouse moors was carried out. This review revealed that there had been no previous detailed research into the activities or tasks that grouse moor gamekeepers undertook as part of their role, confirming that this new project would fill a gap in the literature.

In 2020 the author had interviewed 16 moor owners, six grouse moor gamekeepers, and many local business owners as part of a research project into the impact of grouse moors on their local communities (Denny and Latham-Green, 2020). These interviews provided both useful context about the role of grouse moor keepers, and some limited detail of the tasks carried out. Although the 2020 research did not set out to detail the work that grouse moor keepers did, the information gathered from participants proved to be a useful 'sense check' for the data gathered for this new project. The author was also given access to a 2020 survey of moor owners conducted by the Moorland Association which, again, enabled valuable 'sense checks' to be carried out on data gathered for this study.

Initial primary research for this project consisted of two focus groups (in July and September 2024) where the author interviewed experienced grouse moor gamekeepers about their role (n = 12). He

was greatly assisted in these focus groups by previous work the RMGs had done in early 2024 to group the various tasks carried out by grouse moor keepers under different headings. Following the focus groups, a detailed survey was developed and tested with three keepers in September 2024. The survey was refined and distributed to keepers in the RMGs in October 2024 (see Appendix A). It should be noted that the survey was designed to capture information for each grouse moor, rather than each keeper. Most grouse moors have more than one keeper, and some have teams of up to 10 keepers.

The survey was designed to be anonymous, by both keeper and moor to mitigate against voluntary-response bias. It is recognised that the survey might be prone to social desirability response bias, with keepers presenting their role in an overly positive light. However, the anonymity of the surveys, the information and context gathered in the focus groups, and the sense checking enabled by work done in 2020 will have mitigated against this likelihood. To mitigate against extreme response bias, Likert scale-type questions were not used in the survey, rather the information asked for was factual. Triangulation of the questionnaire data was possible as the great majority of gamekeepers who contributed to this project maintain incident logs, keep records of their work activities on at least a weekly basis, and keep accounts. Incident logs, work activity reports and accounts were studied for a sample of the moors surveyed with the data they recorded compared with the questionnaire data. As a result of this triangulation two of the moors surveyed were deemed to have provided inaccurate and incomplete information¹³ and the information they provided was discarded. Additional triangulation of data about the numbers of birds that were recorded by gamekeepers was carried out by studying information recorded by

ornithological groups, for example Bird Guides,¹⁴ as well as studying data on locations where curlew nests had been found.¹⁵

It was essential that the number of completed surveys produced a fair representation of the population (in this case, the moor) so that the findings could be generalised (Rahman, 2023; Louangrath, 2017). As a rule of thumb in social science research, for populations under 1,000, a minimum of 30% of the population is recommended to ensure the sample is representative, although if the population is smaller than 100 it is sometimes recommended that every member is surveyed. However, other sources suggest that a sample size of only 30 is needed for accurate results for small populations.¹⁶ The number of grouse moors that make up the RMGs is 140 and a total of 60 surveys were completed, representing 43% of the target population (as noted above, two surveys were rejected as the data provided was deemed unreliable). The sample size for this study (43% of the total population) compares very favourably with that obtained by Thomson et al (2020) who achieved a response rate of between 10% and 13% of their target population of gamekeepers, stalkers and ghillies. In addition, the triangulation of survey data with incident logs, work activity report and accounts, and the sense checking using data from Denny and Latham-Green (2020) and the Moorland Association survey of the same year, means that there is a high confidence level in the results. Using the tools contained in the website Calculator Net¹⁷ shows that there is a 95% chance that the real values are within $\pm 9.50\%$ of the measured/surveyed values; a good result for social science research. The Qualtrics¹⁸ sample size calculator tool shows that a sample size of 58 gives a 95% confidence level in the results, again a good result for social science research.



The Respondents

REFERENCES
¹⁹ See <https://www.peakdistrict.gov.uk/>

There are seven RMGs ranging from the Peak District, partly in the English Midlands, to the North Pennines abutting the Scottish border. Table 1 shows the number of moors that completed usable surveys in each of the seven areas.

Regional moorland groups	
Calderdale	8
Forest of Bowland	4
North Pennines	9
North Yorkshire Moors	11
Nidderdale	2
Peak District	14
Yorkshire Dales	10

Table 1: Responses to Survey by Regional moorland groups

All grouse moors are not the same. They vary by acreage, number of keepers employed, topography, aspect, vegetation and, importantly for this study, in how close they are to areas of population. Moors in more remote areas, and which do not have national footpaths such as the Pennine Way, running across them have relatively few people using them for leisure purposes such as walking, cycling and off-roading. However, moors in populous areas, especially those in the Peak District, surrounded as they are by cities including Manchester and Sheffield, and by towns including Matlock, Macclesfield and Chesterfield, are very heavily used for leisure purposes. According to the Peak District National Park website,¹⁹ 20 million people live within an hour’s travel time of the Peak District and more than 13 million people visit the area each year. The implications for gamekeepers working in moors constantly accessed by the public will be examined in this report.

To assess the level of experience of the gamekeepers working on each moor i.e. whether there was an informed data set, the survey asked: firstly, how long had the keeper team been working on their current moor; and secondly, how long the keepers had worked on grouse moors in total. The results showed that a total of 194 keepers were working on the 58 moors in the sample. Figure 1 shows long keepers had been working on their current moors.

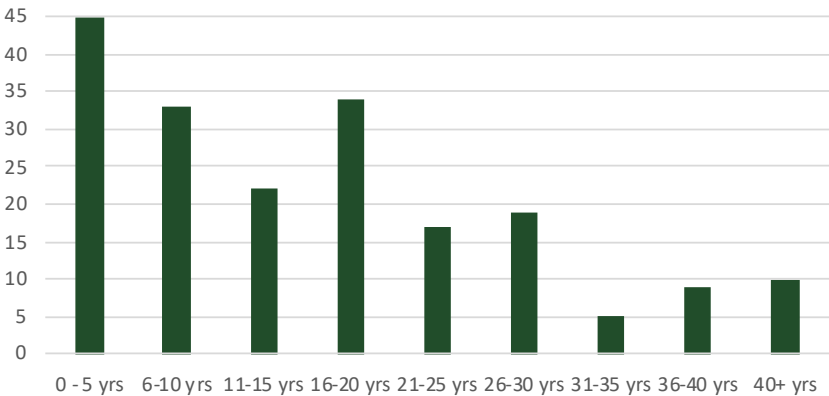


Figure 1: The experience of keepers on their current moor

The survey next asked how long keepers had worked on grouse moors in total. Figure 2 reveals the responses.

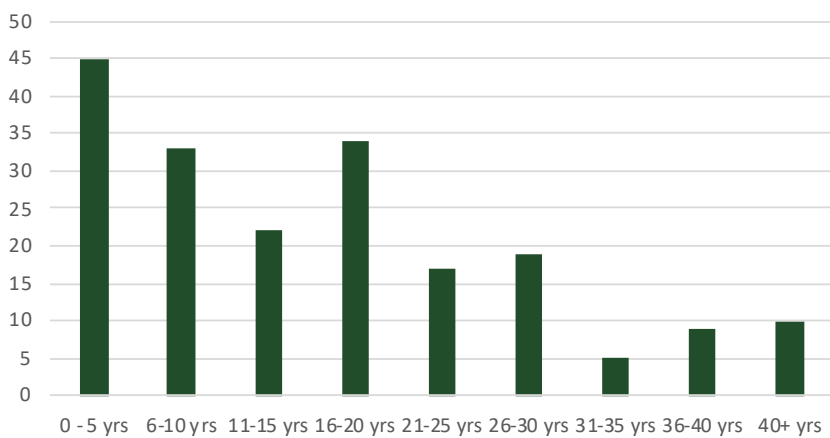


Figure 2: The experience of keepers on any grouse moor

Figures 1 and 2 show that a large majority of survey respondents had both been working on their current moor and had been grouse moor gamekeepers for at least six years. Head keepers²⁰ had typically worked on grouse moors for more than 20 years. Therefore, it was concluded that the respondents were an informed and expert sample who had the knowledge required to complete the survey.

The survey asked the ages of the grouse moor keepers working on the 58 moors to identify whether young people were coming into the profession. The results shown in Figure 3 reveal that although the majority of keepers are aged between 20 and 44 years-old, 12 apprentice keepers (aged under 19 years-old) have been taken on. Being a grouse moor keeper is still a desirable career for some. Surprisingly, given the hard physical work involved in working on a grouse moor, 18 keepers are over 60 years old.

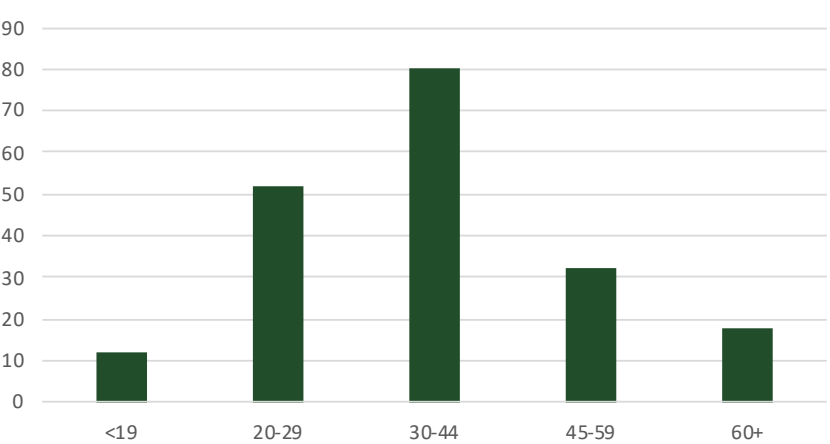


Figure 3: The age in years of the gamekeepers covered by this report

As noted above, grouse moors vary in size. Of the 58 moors covered by this report, 10 were between 850 and 2,400 acres in size; 17 were between 2,500 and 5,500 acres; 18 were between 6,000 and 8,500 acres; 10 were between 10,500 and 18,000 acres; and three were between 30,000 and 36,000 acres. The 58 moors had a total area of 444,370 acres, and the mean average size was 7,662 acres. Therefore, it was concluded that the sample of moors covered by this study was a good representation of grouse moors in England.

REFERENCES
²⁰ Head keepers are those responsible for leading a team of other gamekeepers on a particular moor.



The Grouse Moor Gamekeeper as Educator

The members of the RMGs recognise that the role of the grouse moor gamekeeper is poorly understood. Therefore, as part of their job, members of the keeper team will frequently take part in a range of activities designed to explain what they do, and why it matters. These educational activities range from formal events, such as local or regional shows, to less formal activities such as engaging with people on social media. In the sample covered by this study, only two moors reported that they had not engaged in educational activities, and both of these moors had single keepers and were located in very remote areas of the North Pennines.

The analysis of the survey data shows that, in a typical year, members of 56 keeper teams were frequently involved in local events designed either to explain what their work involves, or to support their local (frequently remote and small) communities. Table 2 shows the range of events in which keepers took part.

Activity	Number of times keepers had been involved in 12 months
Attended a local/regional show to explain their role to members of the public	163
Attended a local school to explain their role	82
Helped at a local fete, village party etc.	72
Helped at a charity event or to raise money for charity	222

Table 2: Events Attended by Gamekeepers

Gamekeepers also host a wide range of visits to their moors, including those run as part of the ‘Let’s Learn Moor’²¹ initiative, where children take part in activities run by those involved in managing moorland to learn more about farming and conservation in the uplands, the importance of peat, the work of the emergency services and other aspects of upland life and moorland management. Interestingly, the survey results reveal that by far the most frequent visitors to grouse moors are members of conservation organisations,²² with policy makers (Members of Parliament, local councillors, and civil servants being (just) the next most frequent visitors ahead of representatives of the media, see Table 3.

Visitors to moors	Number of visits in 12 months
Groups of school children	33
Members of the public	40
MPs, councillors, civil servants	69
Conservation organisations	162
Media representatives	56

Table 3: Groups Visiting Moors and Hosted by Gamekeepers

REFERENCES

²¹ See <https://basc.org.uk/lets-learn-moor/>

²² It is assumed that conservation organisations want to learn about the activities gamekeepers are involved in, and the impacts they have on flora and fauna.

REFERENCES

²³ All the gamekeeper teams which responded to the survey are members of the NGO. The survey asked which wildlife/conservation monitoring or interest groups did the keeper team liaise with in a typical year? Therefore, it is not surprising that the NGO itself was not mentioned as it is seen as a trade body organisation rather than an interest group.

As a result of hosting members of the media, since 2021 gamekeepers have been interviewed 44 times by reporters from their local press, 22 times by the national press, five times by television channels, and eight times by radio reporters. It is obvious that the role of the gamekeeper is not as simple as popularly thought. The need to engage constantly with different audiences, different media and different agenda, means that keepers must be articulate and engaged experts, rather than isolated figures.

It was expected that, in addition to face-to-face encounters with different audiences, gamekeepers would spend a lot of time on social media to explain or, in some cases, defend their actions. However, as will be explored in the next section of the report, because so much of the social media comment on gamekeepers and their work is negative and unpleasant, there is often no point in engaging with senders. Only 23 moors have keepers who spend time on social media in a typical week, and 10 of these devote less than an hour to engagement. Only six moors typically spend more than five hours a week on social media, and these are all heavily involved in Let's Learn Moor events, see Figure 4.

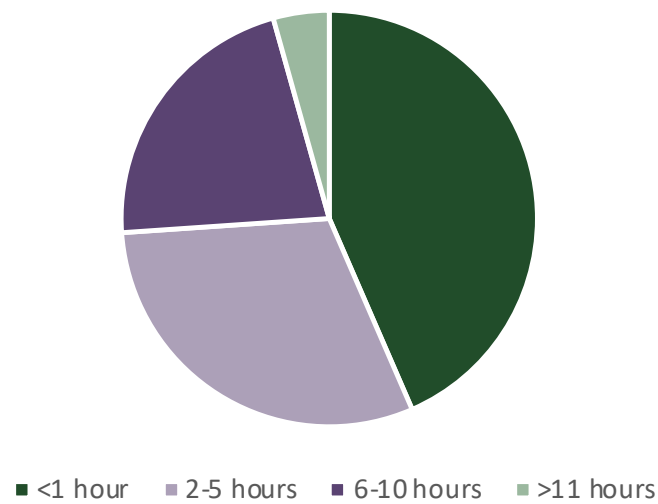


Figure 4: Hours per Week Gamekeepers Spend on Social Media (n=23)

Gamekeepers do not work in isolation but constantly liaise with a variety of conservation or interest groups through the year. This liaison forms part of the work keepers undertake to communicate what they do, as well as giving them the opportunity to learn from the experience and expertise of others. Keeper teams were asked which wildlife/conservation monitoring or interest groups they liaised with in a typical year. The results are shown in Figure 5.²³

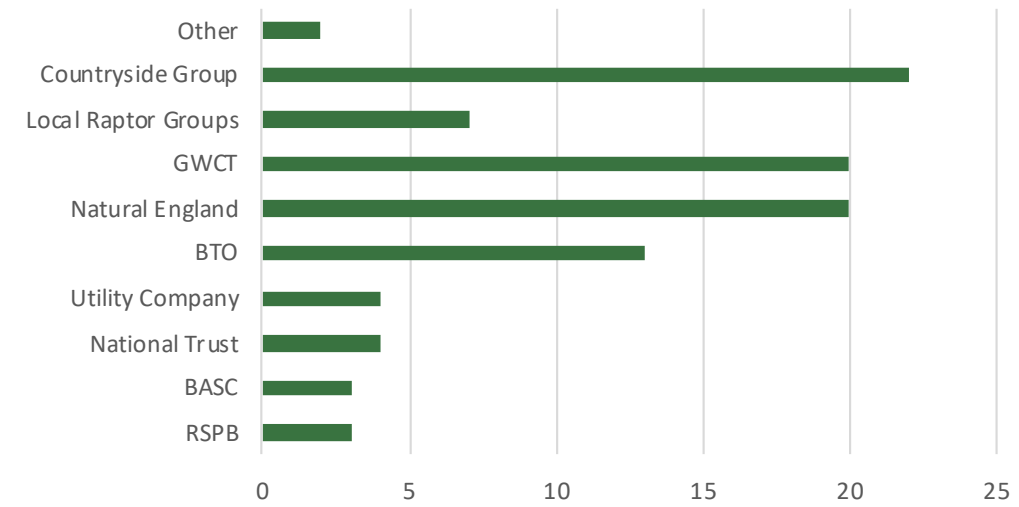


Figure 5: Organisations with which Gamekeepers Regularly Liaise

All but one moor gave examples of external organisations with which they regularly liaised, with the 57 other moors regularly being in contact with at least two external organisations.²⁴ It is not surprising that Natural England is a regular contact for 20 moors, responsible as it is for licensing and grants. The Game & Wildlife Conservation Trust (GWCT) is also in frequent contact with 20 moors, both for research and advice purposes. Figure 5 shows that a total of 22 moors worked with organisations grouped into the category 'countryside group'. This category includes local moorland groups, National Park Authorities and specific wildlife charities, but not local raptor groups, a separate category, with which seven moors engaged. Four keeper teams liaised with either the National Trust or a utility company because they either owned the moor, or were neighbours. Only three moors liaised with the Royal Society for the Protection of Birds (RSPB), whereas 13 worked with the British Trust for Ornithology, a reflection perhaps of the suspicion many keepers have for the motives and agenda of the RSPB. Interestingly, only three moors engaged with the BASC, despite it being the largest shooting organisation by membership in the UK. In the 'other' category were moors which were working with the British Museum and a university (on a specific research project). It should be noted that of the 98 external organisations that are regularly engaging with grouse moor gamekeepers, the overwhelming majority (95 out of 98) are involved with research, conservation, land management, or water quality. The grouse moors in the RMGs are not solely focused on shooting, but spend a great deal of time and effort working with these non-shooting groups; an interesting and important point that is not understood by most people.

REFERENCES

²⁴ Of course, all the grouse moor gamekeepers are in frequent contact with the NGO and, especially, the RMG. However, none of them listed these bodies as external organisations that they liaise with.





Abuse and Criminality

REFERENCES

²⁵ See <https://www.nfumutual.co.uk/farming/rural-crime/>

²⁶ See <https://www.cla.org.uk/news/rural-policing-crisis-forces-lack-dedicated-officers-funding-and-even-torches/>

Like many people who work in the countryside, the grouse moor gamekeeper is frequently the victim of rural crime. Rural crime is not a new phenomenon, but in recent years there has been an increase in the number of organised criminal groups targeting high value equipment on farms and estates. The NFU Mutual's latest figures estimate that the cost of rural crime increased by 4.3% year-on-year in 2023, to £52.8m.²⁵ Police forces often lack the manpower and resources to prevent rural crime, or to catch the perpetrators.²⁶

In addition to the pressures of rural crime, the grouse moor gamekeeper is also frequently threatened face-to-face, and on occasion assaulted, by people carrying out illegal or anti-social acts that keepers come across on their moors. Non-physical attacks on keepers also take place face-to-face and online, mainly by people who are irrevocably opposed to grouse shooting.

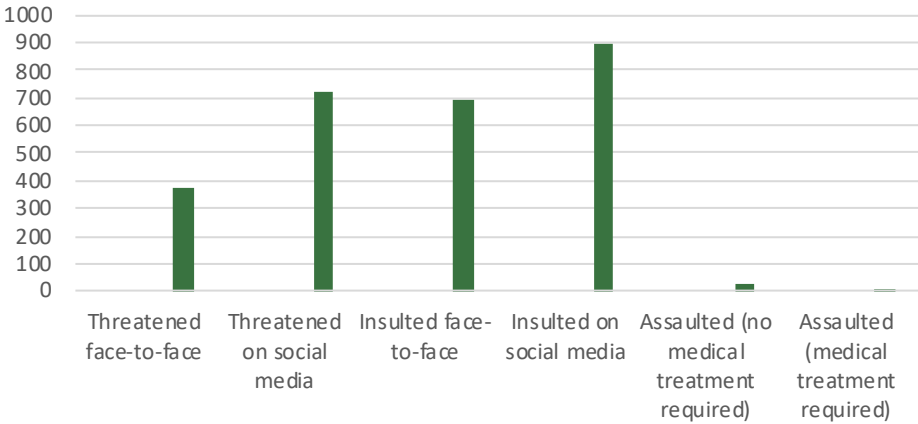


Figure 6: Incidence of Gamekeepers being Threatened, Insulted and Assaulted (over the last 12 months)

With the obvious exception of the police and other emergency services, it is hard to think of any other occupational group in the UK that is subject to such violence and abuse for doing its lawful job.

The analysis of survey data is sobering. The question, *'How many times over the last 12 months has a member of the keeper team, or their family, been threatened, insulted, or assaulted'* show that over 1,000 separate threats had been made to gamekeepers between October 2023 and October 2024. Over 1,500 instances of insults had been recorded in incident logs, and 30 keepers had been physically assaulted, see Figure 6. Fortunately, only five of these assaults resulted in having to seek medical treatment, but keepers know that if they are assaulted, they should not respond as it is likely to imperil their firearms licence. Keepers in the Peak District receive the great majority of threats (88%), insults (78%) and assaults (63%).

The barrage of threats, abuse and assaults has obvious and less overt effects; 94 keepers have suffered a financial loss over the last 12 months, whereas 33 have experienced mental health issues. Again, the majority of keepers who have suffered financial loss (62%) or had mental health problems (73%) in the last 12 months are based in the Peak District.

In addition to personal threats, insults and assaults, gamekeepers in the study's sample also said that they, or their families, had been negatively affected by wildlife and

Incident	No. recorded in last 12 months
Poaching of wild animals	268
Poaching of farm animals	68
Burglary of home	3
Burglary of work premises	24
Theft of personal vehicle	4
Theft of estate vehicle	15
Theft of machinery/plant	18
Theft of fuel	15
Livestock worrying	198
Damage to personal property	53
Damage to estate property	654

Table 4: Recorded Incidents having Negative Effects on Gamekeepers

property crime in the previous year. Table 4 shows the responses to the question, *'How many times over the last 12 months has a member of the keeper team, or their family, been negatively affected by,'*

Interestingly, keepers from the Yorkshire Dales reported the greatest amount of poaching of wildlife (38%), followed by the North Yorkshire Moors (28%). However, the Peak District was again the worse area for poaching of farm animals (84%), livestock worrying (47%), and damage to estate property (62%) again reflecting the number of people who use the area for legitimate and illegitimate activities.

Inevitably, given the amount of abuse and criminality they face, keepers frequently report an incident to the police (700 occasions between October 2023 and October 2024, of which 419 were in the Peak District), or call on the police for support (183 occasions over the same period, 54 in the Peak District, but 75 in the Yorkshire Dales).

As they are a constant presence on their moors, keepers come across stolen property which they help recover (21 occasions between October 2023 and October 2024), and one of their major tasks is the removal of litter and fly-tipping. The general public is messy and many people seem unwilling to pick up what they drop. Incident logs maintained by keepers recorded 4,941 instances of litter being cleared (note, not individual pieces of litter, but occasions when areas were cleaned), and 284 instances of fly-tipping between October 2023 and October 2024. Of course, litter was not evenly distributed and the moors in the Peak District led the way with 53% of litter-clearing events, and 47% of fly-tipping events.

It is sobering to realise how many instances of abuse and criminality gamekeepers suffer, and how much time they have to spend clearing the mess left by those members of the public who, although they use the moors for leisure, seem not to care about the state they leave it in.



The Economic Impact of Grouse Moors in England

Aspects of the economic impacts of English grouse moors were examined by Denny and Latham-Green (2020). They found that there were significant and positive economic impacts on communities, businesses and individuals resulting from the presence of grouse moors. In years when grouse numbers did not permit shooting, there was a noticeable downturn in the income of shops, garages, restaurants and hotels. However, the 2020 research did not gather detailed financial information from gamekeepers. By contrast, this new study asked keeper teams nine questions designed to explore the economic impacts that the work they do on their moors has. It was expected that moors would have a very wide range of economic impacts given their different sizes. This expectation was, unsurprisingly, proved to be correct.

The responses to the first of the nine questions revealed that 137 gamekeepers (70%) were provided with accommodation by the owner of their moor. The information is valuable as it means that money is being spent both to provide and maintain properties and that the keeper and his²⁷ family will be spending money in the local area. No attempt was made to find out how much money keepers spent on themselves and their families in a year as such a question would be intrusive.

Gamekeepers were next asked how much money their estate or moor spent with contractors and suppliers in a typical year. Based on focus group information, and access to accounts provided by some moor owners, the survey asked for information on spend against 13 separate categories.²⁸ As expected, moors spent very different amounts from each other and 16 of the keeper teams did not have access to estate accounts, so could not provide the information requested. However, 42 moors provided detailed information about the money spent in a typical year with contractors that provided the following goods and services:

- Building interior services e.g. carpentry, plumbing, decorating
- Building exterior services e.g. roofing, repairing, decorating
- Vehicle and machinery purchases
- Vehicle and machinery hire
- Vehicle and machinery servicing
- Environmental services e.g. track maintenance, peat restoration, grip blocking, vermin control
- Materials for moorland work e.g. wire, tools, stone, paint, traps
- Security personnel
- Security equipment e.g. cameras, barriers
- Wildlife monitoring equipment e.g. cameras, drones
- Wildlife monitoring surveys by external personnel
- Gun and rifle sales and servicing, including sights etc.
- Ammunition

The analysis of responses to this question revealed that the smallest amount spent by a moor on contractors in a year was £6,700. The shooting rights on this moor were held by a syndicate, one of whom acted as gamekeeper, with the other members working on the moor at weekends, etc. Syndicate members were able to 'walk-up' grouse²⁹ on a maximum of five days a year. In marked contrast, the largest amount spent with contractors in a year was £1,800,000. The owner of this moor employs

a team of 10 keepers and, in a good year for grouse, aims to provide between 40 to 50 driven days.

The mean average expenditure on contractors of the 42 moors that provided responses to this question was £176,000.³⁰ However, this figure is skewed by the 11 moors that spent more than the average mean. The lowest spending 22 moors only accounted for 13% of expenditure on contractors, while the 11 highest spending moors accounted for 65% of money spent with contractors. **The total spent by the 42 moors (that provided information) with contractors in a typical year was £7,398,000.**³¹

The analysis of contractor spend enables three important points to be made: firstly, grouse moors in the RMGs vary enormously in size and scale of operation; secondly, the amount that these moors spend with contractors is significant and extremely important to businesses, many of which are based in rural, often remote, areas; and, thirdly, expenditure on contractors does not depend on grouse being shot every year. Gamekeepers must carry out all their non-shooting duties, even when there are not enough grouse to permit shooting to take place (as in 2024 on most moors). Grouse moors have a major impact on their local economies, every year.



REFERENCES

²⁷ All the keepers covered by this study were male.

²⁸ This question included an 'Other' category, but it was not used by respondents.

²⁹ Beaters are not used on walked-up shooting days, rather the Guns walk in line across the moor to try to flush grouse to shoot. Walked-up days normally produce small bags of up to 30 grouse.

³⁰ The median figure was £100,000.

³¹ If the 16 moors that were unable to provide details of their expenditure spent the median amount (£100,000), then the total expenditure on contractors for all 58 moors would be c. £9 million.

REFERENCES

³² 184 out of 557 local contractors.

³³ Different roles are paid different amounts: typically somebody using their dogs to collect the birds that are shot (the pickers up) will be paid more than a beater, somebody providing security services will be paid less than somebody providing food for up to 80 people.

³⁴ Some of the larger moors (over 10,000 acres) pay their beaters and pickers up more than £50 and £75 a day. However, many of the moors covered by this study are smaller (less than 5,500 acres) and they typically pay beaters less money. Therefore, the figures of £50 and £75 are estimated to be reasonable averages.

³⁵ Number of days shooting offered (1,000) x amount spent on one day by 58 moors (£100,000) / by 58 moors = 1,000 x 100,000/58 = £1.724 million. Of course, this is a very approximate figure.

To help identify the economic impact of the 58 grouse moors on their local economies, the third question asked keepers how many of their contractors or suppliers were local, defined as being based within 20 miles of the moor. It was interesting to note that the moors had contracts with 557 local contractors and suppliers (of course, many contractors and suppliers will serve more than one moor in an area). Given the levels of expenditure noted above, it is obvious that grouse moors are very important customers for local businesses.

Farmers have been encouraged to diversify their income for decades, and farms in the moorlands of England are nearly all operating in Less Favoured Areas (LFAs), meaning the geography of the area limits the viability of agricultural production to mainly livestock. Some farmers operate businesses providing environmental services, vehicle and machinery hire, and catering (especially for shooting parties). Keepers were asked how many of their local contractors were farmers, or from farming families? Surprisingly, 33%³² of their local contractors fell into this category, highlighting the importance of the grouse moors to their local economies.

The people shooting grouse (the Guns) on a driven day are paying for the opportunity, or somebody is paying for them (the amount Guns pay to shoot is explored further below). However, the majority of people who are involved in a driven grouse day get paid. Gamekeepers are of course employed, but loaders, beaters, pickers up, drivers, and catering and security staff are paid by the day.³³ The rates that moors pay the people who act in the different roles, e.g. as beaters, varies greatly, as does the number of days shooting which different moors hold (in a good year for grouse). However, somebody who acts as a beater on 20 or more days is likely to earn c. £1,000. For people who are living in poverty, are unemployed or are young, this money matters. Given the great variation in moors, etc., there was no attempt to find how much individual moors were spending on support staff each year,

rather the survey asked for keeper teams to say how many people were involved on a typical driven grouse day in various roles. Their responses are shown in Table 5.

Roles on Typical Driven Grouse Day	Numbers
Guns	519
Loaders	362
Beaters (<i>including Flankers</i>)	1,642
Pickers up	234
Drivers	97
Catering staff	134
Security staff	35
Others (<i>shooting agents and organisers</i>)	14
Total	3,036

Table 5: Number of People Taking Key Roles on Driven Grouse Day

Table 5 identifies that if all the 58 moors ran driven grouse shoots on the same day, over 3,000 people would be involved. To the author’s knowledge, such an event has never happened and, as would be expected, some people will act as beaters, pickers up, etc. on more than one moor. However, the table does enable some useful indicative sums to be done. A reasonable average day’s pay (after tax, which is normally deducted by the moor owner) for a beater is £50, and for a picker up £75.³⁴ Therefore, the 58 moors are collectively spending c. £100,000 on beaters and pickers up, if they all shot on just one day a year. Given that in a good year for grouse numbers, the 58 moors surveyed offer c. 1,000 days of shooting, the money spent on beaters and pickers up in a year could be as much as £1.7 million.³⁵

A minority of the people who are involved in supporting roles on shooting days are poor, unemployed, suffer from a variety of mental and physical illness, and are lonely (explored below in the Social Impact section

of the report).³⁶ Nearly everybody engaged in a driven grouse day enjoys themselves, and for some the money they earn is very important to them.

Keepers were also asked to estimate the distances in miles that people (not Guns) travelled to take part in a driven grouse day. This is useful information to know as it gives another indication of the importance of the grouse moors to the local inhabitants. Figure 7 shows that 70% of the 3,036 people that were involved travelled less than 20 miles, i.e. they were local inhabitants; 26% travelled between 21 and 70 miles;³⁷ 3.5% travelled between 71 and 150 miles, and 0.5% (15 people) travelled more than 150 miles.³⁸ The data clearly shows the importance of the work of gamekeepers in putting on driven grouse days to local inhabitants, both economically and (as discussed in the Social Impact section of the report) socially. Given that grouse moors tend to be in remote areas with low population densities, shooting days are economically important to many local people.

The survey asked how many days shooting each moor offered a year, in a good year for grouse. The answers highlighted the very different size and scale of the various moors, with the minimum number of days shooting being three, and the maximum 50. In total, again in a good year for grouse, the 58 moors offered 1,054 days of driven

grouse shooting between them, the different averages being:

- Mean number of days = 18
- Mode (most frequently occurring) number of days = 10
- Median (middle value) number of days = 11

Obviously, there is limited value in knowing the mean, mode and median number of days shooting offered. The important point is that the moors taking part in this study were of very different sizes and operated very different shooting models and prices, as the responses to the next question show. Not all keepers know whether a Gun is paying for their day’s shooting, how much they pay, and where they come from. However, the majority of keepers are privy to this information, so were able to respond reasonably accurately to the following question:

‘On a driven day, in a good year for grouse: how many of the Guns pay to shoot; approximately, how much do they pay to shoot; and how many of them come from outside the UK?’

The responses show that 86% of people who shoot driven grouse on the moors pay for the opportunity. The remainder are either members of the families who own the moors, or their friends. The amount that people pay to shoot driven grouse varies between £1,500 a day to £4,500 a day.

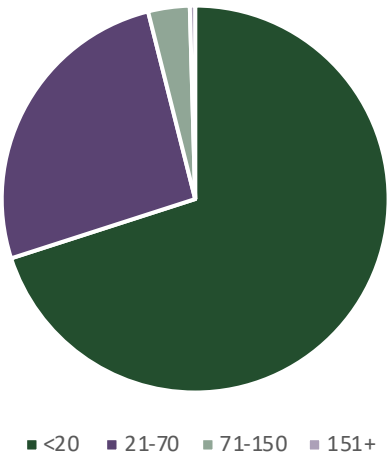


Figure 7: Distance (in miles) Travelled by People Taking Part in, but not Shooting on a Driven Grouse Day

REFERENCES

³⁶ See also Latham Green (2020).

³⁷ It is accepted that the upper and lower limits of the distances travelled are far apart.

³⁸ All of the people travelling more than 150 miles were loaders than Guns brought with them.



Cost is largely dependent on the number of grouse expected to be shot and the hospitality provided. The number of Guns who come from abroad is c. 1,200. As these Guns nearly all attend the more expensive shoots, it can be confidently stated that these 1,200 people spend at least £4 million a year, just on shooting. The amounts they spend on accommodation etc. are described below.

It is not possible to calculate the total annual income from grouse shooting on the 58 moors in the sample as not all gamekeepers were privy to the information requested by the survey. However, it is possible to estimate an indicative average income based on a sample of 10 moors.

Moor	Number of Guns a day	£ Cost per Gun per day	No. Days shooting p.a.	£ Total Income p.a.
1	10	2,500	4	100,000
2	9	2,000	10	180,000
3	9	1,500	20	270,000
4	8	3,600	12	345,000
5	10	3,500	10	350,000
6	10	4,000	10	400,000
7	9	3,250	30	875,000
8	9	3,000	40	1,080,000
19	10	2,500	45	1,125,000
10	9	4,500	40	1,620,000

Table 6: The Range of Shooting Income Gained by Grouse Moors

Table 6 displays the ranges of income, using the examples of 10 moors of the 58 covered by this study. The data highlights, yet again, the differences between grouse moors, and shows that most moors do not make seven figure incomes a year. However, the data does give some idea of the amount of money that shooting brings into rural, often remote, areas.

The total income from shooting on these 10 moors, in a good year, amounts to £6,345,000, thus the average (mean) is £634,500. **Using this average to calculate a very indicative total annual income (in a good year) for the 58 moors covered by this study gives a total of £36,801,000.**

In a typical year, how many Guns?	Totals
Use local airports	1,263
Hire vehicles in the UK	522
Use taxis	823
Stay in local hotels/inns	4,747
Use local shops for clothing and shooting equipment	3,334
Bring their partners with them (whether they come out on the moor or not)	2,064

Table 7: Number of Guns Purchasing Goods and Services in the UK in order to Shoot

The next question in the survey was designed to estimate the amount of money Guns spend to take part in driven grouse shooting, excluding the cost of shooting itself. It was accepted that keepers would not have the exact information asked for, but they were asked to estimate, for a typical year, how many Guns used local airports, hired vehicles, or used taxis to get to the moor, and how many times they stayed in local hotels or inns, used local shops, and how often they brought their partners with them.³⁹ The responses to this question are shown in Table 7.

Table 7 provides a valuable addition to our understanding of the economic impact of driven grouse shooting, as the following indicative (and very conservative) calculation shows for the 58 moors involved in this study:

- Assuming the 4,747 Guns stay only one night in a local hotel/inn, at a cost of £130 per night B & B: $4,747 \times £130 = £617,110$;

- Assuming each of the Guns has a dinner at £50: $4,747 \times £50 = £237,350$;

- Assuming the 2,064 partners spend £130 on accommodation and £50 on dinner: $2,064 \times £180 = £371,520$;

Then the indicative non-shooting spend of Guns and their partners, just on food and accommodation is £1,225,980.

Clearly, this is no more than an illustrative calculation based on the estimates provided by gamekeepers and some very conservative estimates of costs. However, it does serve to illustrate the economic importance of grouse shooting to local hospitality businesses in remote moorland communities. Importantly, most of this business takes place outside the main tourist season. In years when grouse numbers do not permit shooting, local businesses have reduced incomes. No attempt has been made to calculate the economic impacts of vehicle hire, taxis and expenditure in shops.



REFERENCES
³⁹ Although partners of Guns, nearly all of whom are female, do not shoot, they will be accommodated in hotels etc., eat meals and spend money in the local area in shops, museums, galleries etc. Some grouse moor owners run programmes of events for partners of people shooting.

REFERENCES

⁴⁰ As noted above, this figure does not include expenditure by Guns on vehicle hire, taxis and in shops etc.

⁴¹ The author of this report, and his wife, have often visited moors for walking and birdwatching holidays.

The keeper teams were also asked to estimate how many people, *who were not Guns*, involved in driven grouse days in a typical year would have meals in local venues, stay in local venues, and use local shops and garages. Driven grouse days are social, as well as working days, so it was expected that many people would have a meal together afterwards. It was also anticipated that local shops and restaurants would be used by many people either before or after a day on the moor. The responses to this question are shown in Table 8.

Again, it must be stressed that the figures in Table 8 are based on gamekeepers' estimates. However, as noted above in the section on the Respondents, grouse moor gamekeepers are experienced and understand what happens before, during and after a day's shooting, thus can provide informed estimates.

Table 8 provides another useful addition to our understanding of the economic impact of driven grouse shooting, as the following (again, conservative) indicative calculation shows:

- Assuming an average cost of £30, then c. £425,580 is spent on meals and drinks in a year;
- Assuming an average cost of £100, then c. £414,700 is spent on accommodation in a year;
- Assuming an average spend of £10, then c. £144,710 is spent in local shops in a year;

In a typical year, how many people (not Guns)	Totals
Have a meal in a local pub/restaurant	14,186
Stay in local hotels/inns	4,147
Use local shops	14,471
Use local garages	10,971

Table 8: Number of People involved in Driven Grouse Shooting (but not Guns) using Local Services

- And assuming an average spend of £50, then c. £548,550 is spent in local garages in a year

• Then the indicative spend resulting from people (NB. Not the Guns) taking part in driven grouse shooting on the 58 moors in a typical year is c. £1,533,540

Adding the total indicative expenditure from Tables 7 and 8 gives a total of c. £2,759,520 being spent with businesses in remote moorland communities, mostly outside the main tourist season.⁴⁰ To this sum can be added the money that Guns spend on shooting (£36,801,000), and the money that is spent with contractors in a typical year (£7,398,000). **Adding these three figures together shows that in a good year for grouse, a grand total of at least £46,958,520 of expenditure will be generated by the 58 moors.** (Note: this figure does not include the money spent on beaters, pickers-up and other 'support staff' which is estimated as being c. £1.7 million.) It must again be pointed out that the figures given above can only be indicative, but they give a very clear indication of the economic importance of grouse shooting, especially in the areas where it takes place. In a poor breeding year for grouse, such as 2024, money will still be spent with contractors. However, the data gathered for this report shows that in a non-shooting year businesses, many of which are very local to their moors, will lose c. £40 million income, a massive figure for businesses in remote, rural areas, and hundreds of people will lose the money they get for beating, etc.

The key point being made here is that grouse shooting is very high-value tourism. People that go on walking or cycling holidays, or go bird watching in moorland areas⁴¹ do have meals and stay locally, they do visit local shops and garages. However, they do not pay to use the moors for their recreation. They do not buy goods and services from local contractors. However, these people are able to access the moors, and enjoy the flora and fauna they see, because of the work of gamekeepers. The work that gamekeepers do directly generates income for their moor, and indirectly generates income for local businesses. To repeat an important point, most of this direct and indirect income is generated outside the main tourist season and is very important for communities and businesses in areas where grouse shooting takes place. In a recent report examining the sustainability of driven grouse shooting (Denny 2023) the author examined alternative uses of grouse moors. The evidence showed that there



was no other activity that could take place on grouse moors that would generate the same amount of economic activity and income, especially income to local people and businesses.



The Environmental Impacts of Grouse Moors in England

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⁴² This figure has been challenged and is uncertain, for example, due to definitions around heather moorland, but the UK certainly has most of the world's heather moorland.

⁴³ The global importance of the UK's heather moorland has implications for those that advocate alternative uses of the land, especially those that want to plant trees on moorland.

Grouse moors often (though not always) occur on peat soils; either deep peat, which can be blanket bog, or shallow peat and mineral soils, which are on heathland areas. Grouse moors typically have is a mosaic of vegetation of different heights, including heather, grasses, bracken and dwarf shrubs. Around the edges of moors, and in river and stream valleys it is common to find woodland, including native broadleaf trees and conifer plantations.

Grouse mostly eat the young shoots of heather plants, so heather management, usually by a combination of controlled burning, grazing and mowing, is undertaken to encourage new growth. A mix of young and older heather provides both good food quality and cover for nesting. As a result of this management, and historical management for sheep, no other country has extensive heather uplands equivalent to those in the UK. Most other countries' heather areas are lowland or coastal, leaving the UK responsible for a considerable proportion of the world's heather moorland, estimated to be around 75%.⁴² For this reason, the 1992 Rio Convention on Biodiversity recognised the global importance of UK heather moorland.⁴³ Heather-dominated moorland supports groups or 'communities' of plants growing together that are either only found in the UK, or are found more abundantly here than elsewhere in the world. These communities are different to those found under other land uses such as livestock farming or commercial forestry, so grouse moor management increases overall 'gamma' biodiversity in the uplands (GWCT, 2019). They include species of berry, grass, sedge, and mosses such as *Sphagnum*, which together define habitats that are listed under the EU's Conservation of Natural Habitats and of Wild Flora and Fauna Directive. The environment of the English grouse moors is precious and exists because of the management, and protection, that teams of keepers carry out. As already noted, even in years when there is not a surplus of grouse to permit shooting, gamekeepers continue to carry out their environmental management tasks. The impacts of the environmental work of grouse moor gamekeepers is examined in this section.

Preventative Action

As well as proactive environmental management, the data from the survey shows that keepers must constantly take action to protect the environment of the moors. Unsurprisingly, the major cause of damage to the flora and fauna of grouse moors is those members of the public who sometimes act without thinking or, sadly, sometimes act illegally.

Keeper teams were asked to check their incident logs and record how many times over the last 12 months had a member of the team asked people to take or stop the activities described in Table 9.

Inevitably, those moorland areas that experience the greatest number of visitors account for the great majority of the incidents listed in Table 9. The Peak District and the North Yorkshire Moors account for 88% of occasions when keepers have asked people to put their dogs on leads (and professional dog walkers might have as many as 16 dogs at a



time out with them), and 80% of occasions when keepers have asked people to keep to permitted footpaths and tracks when walking. These preventative actions taken by keepers are, obviously, strongly correlated with the number of threats, abuse and assaults they experience (see Figure 6). However, despite the often personally distressing consequences of their actions, gamekeepers continue to ask people to act lawfully and sensibly to protect the moors. Fortunately, most people who use the moors for leisure activities act sensibly and lawfully.

Preventative Action Taken by Gamekeepers - Asking People to:	Total incidents recorded Oct 2023 – Sep 2024
Put their dog(s) on a lead ⁴⁴	9,658
Keep to footpaths and tracks when walking	5,026
Keep to footpaths and tracks when cycling	3,798
Stop illegal motorbike riding	1,108
Stop illegal four-wheel vehicle driving	785
Put out a camp fire or barbecue	2,323 ⁴⁵
Stop camping where it is not permitted	1,865
Pick up their litter	5,689
Stop other anti-social behaviour:	
Illegal rave	12
Vandalising property	62
Picking magic mushrooms	20
Drug dealing	2
Flying drones	1

Table 9: The Things Gamekeepers ask People to Stop Doing

REFERENCES

⁴⁴ Loose dogs can disturb ground-nesting birds, both grouse and red-listed species such as curlew and hen harrier during the breeding season.

⁴⁵ Essential to prevent wildfires. Camp fires and barbecues are, of course, mainly lit in the warmer months when people want to spend a lot of time on the moors.



REFERENCES

⁴⁶ See <https://nationalemergenciestrust.org.uk/wildfires-growing-risk/>

⁴⁷ See <https://www.peakdistrict.gov.uk/looking-after/projects-and-partnerships/fireoperationsgroup/fog>

Wildfire

Expert practitioners, firefighters and academics are becoming increasingly concerned about the potential impacts of rising fuel loads in our uplands due to a cessation of vegetation management (Belcher et al., 2021), especially considering climate change predictions (Barber-Lomax et al., 2021). Regional Fire & Rescue departments are firm in their view that allowing heather fuel loads to build up not only increases the risk of wildfire but also makes their job of controlling wildfire much harder (Barber-Lomax et al., 2021). The incidence of vegetative wildfires is increasing in the UK,⁴⁶ and moorlands are experiencing the greatest level of increase, perhaps not surprising given the number of people lighting fires on English grouse moors, as well as natural causes of wildfires such as lightning strikes. Therefore, keepers have to be trained and equipped to fight wildfires. The Fire & Rescue Service recognises the experience and expertise of keepers in fighting wildfires and many firefighters receive training from gamekeepers, as well as advice on equipment requirements.

The survey asked three questions about wildfires, the results of which are presented below. The first asked keepers how many times over the period 2021 to 2024 they had been involved in fighting wildfires on their moor, on those owned by others, and on their links with the Fire & Rescue Service. The answers are presented in Table 10.

In the Last Three Years, How Many Times have Gamekeepers been Involved in:	Total recorded incidents
Fighting a wildfire on your moor	84
Fighting a wildfire on another grouse moor	64
Fighting a wildfire on a moor where grouse shooting does not take place	46
Training members of the Fire & Rescue Service in wildfire management	111
Attending meetings with the Fire & Rescue Service	114
Helping owners of moors where grouse shooting does not take place with wildfire management planning	22

Table 10: Gamekeepers and Wildfire Prevention or Control

The second question asked whether any member of the keeper team attended meetings of the Peak District Fire Operations Group,⁴⁷ which was set up in 1996 and consists of a partnership of six fire services, National Park rangers, National Trust wardens, water companies, major land owners and gamekeepers to draw up fire plans, oversee specialist fire-fighting equipment, raise awareness of moorland fires and the consequences and train for emergencies. All grouse moors in the Peak District are part of the Group and, in all, 20 keepers have attended meetings and fire training exercises, as well as contributing experience and expertise to the Operations Group's activities.

The third question sought detail on the ownership of moors where keepers had been involved in fighting wildfires, and where grouse shooting does not take place. Keepers were asked how many times over the period 2021 to 2024 they been requested to provide assistance in fighting wildfires by conservation organisations, utilities, or other entities. The responses to this question are shown in Table 11.

Organisations Requesting Gamekeeper Assistance in Fighting Wildfires in Last Three Years	Total recorded incidents
National Trust	12
RSPB	9
National Nature Reserves	2
Other Conservation/Wildlife organisation	2
A Corporation e.g. a water or power company	18
Military Training Areas	3
Total	46

Table 11: Organisations that have Requested Gamekeeper Help to Fight Wildfires

The figures in Table 11 make it very clear that the expertise and experience of keepers in fighting wildfires, and the specialist equipment they have, are valued by conservation and other organisations. In general, the keeper teams were happy to provide assistance to these organisations, although one keeper felt strongly enough to put the following comment on the survey: *"It would have been nice to have been thanked by the [name of conservation organisation] for our work, rather than some bloke in shorts and trainers watch us put out a wildfire on the moor he was supposed to manage and then just get in his car and **** off!"*

The work activity records maintained by grouse moor gamekeepers show that they devote most of their time to environmental management. Grouse moors are constantly surveyed and monitored, often by external organisations, to identify the impacts of this management. This section of the report will examine the types of environmental management carried out by keepers, including the legal control of generalist predators, reveal the amount of surveying and monitoring that takes place on grouse moors, and then reveal the (extraordinary) variety and quantities of wild birds that result from the work of the keepers.





REFERENCES

⁴⁸ Source: Regional Moorlands Groups

⁴⁹ Sphagnum is not the only vegetation that forms peat.

⁵⁰ Keepers were given the choice of answering in acres or hectares. Only two moors used hectares in their answers so this report has gone with the majority and uses acres as a measure of area.

Management of Vegetation

The 58 moors whose keeper teams responded to the survey have a total area of c. 444, 370 acres.⁴⁸ The UK’s vegetation is a result of millennia of management and vegetation must be managed if it is to be healthy and support a diverse and rich flora and fauna. Given the rugged nature of the terrain on their moors, keeper teams (and owners of moors where grouse shooting does not take place) have relatively few cost-effective methods of managing vegetation, so rely on a combination of controlled burning, mowing and grazing. Different moors use management methods that are permitted and practical, for example, controlled burning is not allowed on all moors. However, it is important to realise that fire has always played an inherent part in the ecology of the UK’s heathlands and heather-dominated uplands, including on shallow peat and deep peat such as blanket bogs. Charcoal and pollen counts from many peat cores across the UK often indicate historically high heather cover and frequent fire episodes over millennia (Chambers et al., 2017; Webb et al., 2022).

As noted above, managing vegetation has become particularly important for the prevention of serious wildfires. Controlled burning (sometimes known as ‘cool burning’ or ‘muirburn’, a management practice increasingly taught to fire fighters) will not in itself prevent wildfires from occurring, but by reducing fuel loads it is likely to slow their progress and reduce their severity, thus lessening the risk to people, wild and domesticated animals, property, infrastructure and upland ecosystems. In many countries, including the USA, it is known that controlled or prescribed fires reduce the severity and potential for the next wildfire in areas where they are used (Arkle et al, 2012), and firefighters know these areas as places where fire activity will be reduced and can use those areas as anchors to try to catch wildfires before they spread (Harris et al 2021). Controlled burning has also been shown to increase carbon sequestration (Heinemeyer *et al.* 2018) and increase sphagnum cover, important for peat formation.⁴⁹ Unmanaged heather also has lower nutrient levels and can also dry out peat, reducing carbon uptake (Heinemeyer at al. 2023)

Gamekeeper teams were asked three questions about the vegetation management they carried out. The first question simply asked which management methods were used on their moor and, if they were used, how many acres⁵⁰ were managed using that method. Table 12 shows the responses to the question, ‘*In a typical year, which methods of vegetation management are used on your moor, and approximately how many acres are managed by each method?*’

Method	Number of moors using:	Total acres managed using method
Controlling burning	31	37,868
Mowing	40	50,108
Grazing	35	185,350
Total area actively managed in a typical year		273,326

Table 12: Vegetation Management Methods and Area Covered

Grazing is usually managed by moving the sheep (and sometimes cattle) of the owner of the moor, or of local farmers and graziers, to different parts of the moor at different times of year. To ensure that vegetation is not over- or under-grazed, the gamekeeper teams must be in constant communication with the owners of the animals. To reiterate an important point, gamekeepers do not work in isolation but are part of a team working the moorland in various ways.

In a typical year the keepers on the 58 grouse moors in the study sample actively manage a total of 273,326 acres,⁵¹ an area about the same size as Bedfordshire. Of course, moors are of varying size and have keeper teams ranging from one to over 10, but it is important to note that all the moors in this study have active vegetation management plans even in years when, as noted above, there are not enough grouse to permit shooting to take place.

The second question in this section asked for information about actions taken to improve the habitat of the moors, including work designed to increase carbon capture or reduce emission. Rather than asking for information for ‘a typical year,’ this question asked for information relating to the period since 2021. The responses to the question, ‘*Over the last three years, how many acres or hectares (whichever unit you normally use) of your moor (including the margins) have been (improved)?*’ are shown in Table 13.

Method Used to Improve Moor Habitat	Total Acres Improved
Reseeded (including heather plugs)	10,456
Rewetted	61,409
Had peat restoration work	57,369
Had bracken management work	24,762
Cleared of self-set trees	29,119
Planted with trees	2,519
Sphagnum plug planting	464
Total area of moorland improved since 2021	186,098

Table 13: Moorland Habitat Improvement and Area Covered

It is worth reminding the readers of this report that there are 140 grouse moors in the RMGs. This study examines data from 58 of these moors. The keeper teams on these 58 moors have worked to improve over 186,000 acres, an area bigger than the county of Middlesex, and nearly twice the size of Rutland, an extraordinary amount of work in the last three years! Of course, the keeper teams work with contractors to do much of the habitat improvement,⁵² but they are responsible for the planning, managing and monitoring of the work of contractors, as well as spending many days themselves in ‘hands on’ habitat work.

REFERENCES

⁵¹ In other words, each year keepers on the 58 moors are actively managing 61.5% of the total land area of the moors. In different years, different parts of the moors will be managed.

⁵² As discussed in the section on Economic Impacts.

“In a typical year the keepers manage a total of 273,326 acres”

REFERENCES

⁵³ Equivalent to c. £24 million in 2024.

⁵⁴ See <https://www.gwct.org.uk/blogs/news/2024/june/ticks-on-chicks/> and <https://www.gwct.org.uk/policy/consultation-responses/evidence-submission-to-the-2016-petitions-committee-inquiry-into-grouse-shooting/selective-use-of-evidence/> and <https://www.gwct.org.uk/media/682046/Driven-grouse-shooting-fact-sheet.pdf>

⁵⁵ Companies such as Dalefoot sell compost based on bracken, see <https://www.dalefootcomposts.co.uk/our-products.aspx>

⁵⁶ See <https://www.futurelandscapesforum.com/bracken-control>

Bracken can provide a valuable habitat for species of conservation interest, where the bracken canopy acts as a surrogate canopy for the food plants of butterflies (Pakeman and Marrs, 1992; Bulman and Bourn, 2005). This is especially the case where bracken covers an area that was formerly woodland (Marrs & Watt, 2006). Bracken can also provide a habitat for many species of bird, notably the Whinchat (*Saxicola rubetra*) (Pakeman & Marrs 1992). However, a review of the literature on bracken showed that where it colonises, the conservation value is generally reduced relative to the communities that it replaces (Pakeman and Marrs, 1992). In addition, bracken invasion causes problems for livestock-based extensive agriculture, conservation, recreation, and game management (Pakeman and Marrs, 1992; Marrs and Watt, 2006). In 1988, bracken was shown to cost £8.8m⁵³ to the agricultural economy in the LFAs of England and Wales through reducing the amount of available grazing and increasing the costs of stock gathering and veterinary bills (Lawton and Varvarigos, 1989). It is poisonous to grazing animals. Ptaquiloside, one of the carcinogens produced by *P. aquilinum*, has been detected in potable water supplies (Clauson-Kaas *et al.*, 2016; Vaidotas *et al.*, 2022) and this is an obvious cause for concern. Moreover, bracken-dominated vegetation can harbour ticks (Sheaves and Brown, 1995) with their associated diseases affecting both humans (Lymes disease, tick-borne encephalitis) and animals (louping ill, other tick-borne diseases) (Marrs and Watt, 2006). The GWCT has found that ticks cause illness and, in some cases, death to the young of ground-nesting birds.⁵⁴ Given the problems bracken causes, it is not surprising that moor owners spend time and money trying both to limit its spread and reduce the area it covers, as demonstrated in Table 13 above. Therefore, keeper teams were asked which methods they used for managing bracken. Their responses are shown in Figure 8.

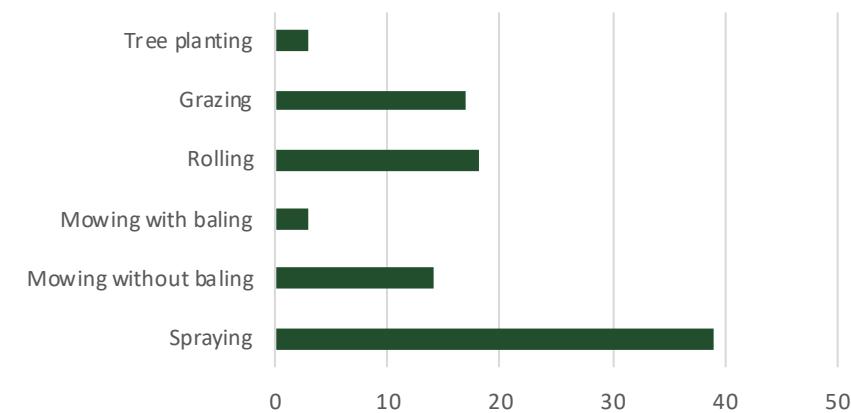


Figure 8: Bracken Management Methods used by Gamekeepers

Only two of the 58 moors covered by this study said that bracken was not a problem and thus did not have to be managed. Of the 56 moors that did manage bracken, all used more than one method with the majority (70%) spraying herbicide, about a third crushing the bracken using heavy rollers pulled by tractors and another third using cattle to tread down the fronds when they were young, a similar technique to rolling, but using beasts. Mowing was used by 25% of the moors, and three moors employed contractors who collected the cut bracken and then used it for compost etc.⁵⁵ Finally, three moors tried to control the spread of bracken by planting trees which, it is hoped, will out-compete the fern, a long-term and low-intensity strategy that has not been tested experimentally.⁵⁶ The important point to note about bracken control is that 97% of moors covered by the study devoted time and resources to limit the negative impacts of bracken. Bracken control is an important task for the great majority of keeper teams.

Predator Control

It is well known that to have large numbers of different species of birds (including gamebirds) successfully breeding on a moor, control of generalist predators is essential. Most conservation organisations, including the RSPB and National Trust, carry out legal predator control where they consider it necessary, predominantly to improve the conservation status of red- and amber-listed ground-nesting birds. The survey data gathered for this report demonstrates that it would not be possible to for English grouse moors to have the wild bird numbers that they do without the rigorous predator control carried out by gamekeepers. The survey asked two questions about predator control; which species were controlled without having to apply for a specific licence, and which predators were controlled after a licence had been granted.

The first question asked keepers to say which predators are controlled, without having to apply for a licence. The results are presented in Table 14.

Which Predators are Controlled on your Moor?	Total number of moors
Fox	58
Carrion crow	57
Stoat	54
Weasel	49
Mink	24
Rat	47
Feral ferret	6
Feral cat ⁵⁷	4
Grey squirrel	3

Table 14: Predators Controlled on Grouse Moors Covered by Study

On all 58 moors the keeper team controlled foxes, and the very great majority controlled carrion crows (57), stoats (54), weasels (49) and rats (47). Just over 40% of the moors had a mink control programme, and a few moors had specific problems with feral ferrets (6), feral cats (4), and the grey squirrel (3). All moors constantly controlled at least four predators.

Some specific bird species, for example herring gulls and lesser black-backed gulls, which predate ground-nesting birds cannot be controlled without a licence issued by Natural England.⁵⁸ Natural England has issued a class licence to permit any wild bird control necessary to preserve air safety. However, to limit the predation of red-listed ground-nesting birds on grouse moors by herring gulls etc., keepers must apply for individual licences. Applications for licences are frequently refused. Keeper teams were asked if they had controlled any predators having successfully applied for a licence. Only 15 licences had been granted, eight of which permitted the control of either herring or lesser black-backed gulls, and seven were for the control of other species (including in three instances, cormorants – presumably predated fish in rivers, lakes and pools in moorland areas). Gamekeepers are not able to control all the species that predate ground-nesting birds, even if these birds are red-listed.



REFERENCES

⁵⁷ A feral cat is a domestic cat living, at least partly, independently of humans. Feral cats are found in a wide range of habitats, from urban to woodland, farmland and upland. They eat mainly rodents and lagomorphs, but depending on location their predation on other species may pose a threat to poultry, game and other native wildlife (Woods *et al.* 2003). Feral cats also endanger the native wildcat through hybridisation and the spread of disease (Macdonald *et al.* 2004). Feral cats may be culled throughout the year, but they must be destroyed humanely because the provisions of the UK animal welfare legislation apply equally to feral cats and those kept as pets (Natural England 2010). Source: GWCT <https://www.gwct.org.uk/research/long-term-monitoring/national-gamebag-census/mammal-bags-comprehensive-overviews/feral-cat/#:~:text=A%20feral%20cat%20is%20a,to%20woodland%2C%20farmland%20and%20upland.>

⁵⁸ See <https://www.gov.uk/government/news/changes-to-licensing-of-the-lethal-control-of-herring-gull-and-lesser-black-backed-gull#:~:text=We%20have%20issued%20a%20class,will%20need%20to%20be%20prioritised.>



REFERENCES

⁵⁸ Wildlife monitoring equipment is frequently damaged or stolen so needs to be constantly replaced.

⁶⁰ See <https://www.gwct.org.uk/policy/briefings/driven-grouse-shooting/mountain-hares/>

⁶¹ One moor in Nidderdale and one in the Forest of Bowland also surveyed Black grouse.

Surveying and Monitoring

All keeper teams record the numbers of red grouse, and other birds, and pests and diseases found on their moors. It should be noted (as shown above in the section on Economic Impact) that 40% of the sample of 58 moors had, within the last 12 months, paid for surveys to be carried out by external organisations such as the British Trust for Ornithology; whereas 55% of the moors had bought new wildlife monitoring equipment in the same period.⁵⁹ Water quality is often frequently monitored. The survey asked three questions about the surveying and monitoring that is carried out.

The first question asked, ‘Which species of animal are routinely surveyed or monitored on your moor?’ The results are presented in Figure 9.

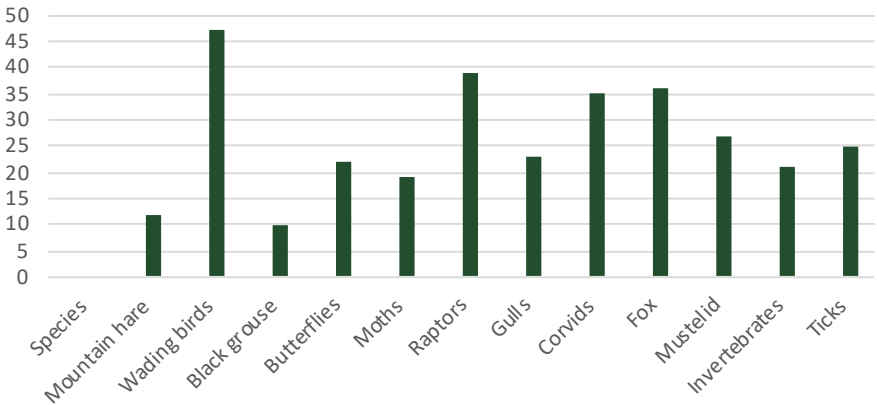


Figure 9: The Species Routinely Surveyed on Grouse Moors Covered by Study

Mountain hares are only found in England in the Peak District, and all 12 moors that surveyed this rare mammal were from that RMG. The GWCT⁶⁰ and gamekeepers in the Peak District believe effective predator control is essential to retain England’s last viable population of the mountain hare which, unlike the brown hare (which was introduced to the UK by the Romans), is indigenous to the UK. The majority of moors (10 out of 12) that surveyed for black grouse were in the Yorkshire Dales or North Pennines⁶¹ areas reflecting the limited distribution of this spectacular bird. All 58 moors in the sample carried out regular and frequent surveying and monitoring of animal species.

Like all other environments in the UK, grouse moors of England suffer from disease and parasites. Keepers were asked, ‘Which diseases and parasites are routinely surveyed or monitored on your moor?’ The results are presented in Figure 10. The results show that six animal diseases and parasites are commonly monitored: tape worm, cryptosporidiosis,⁶² mycoplasma,⁶³ coccidiosis,⁶⁴ louping ill,⁶⁵ and strongyle worm.⁶⁶

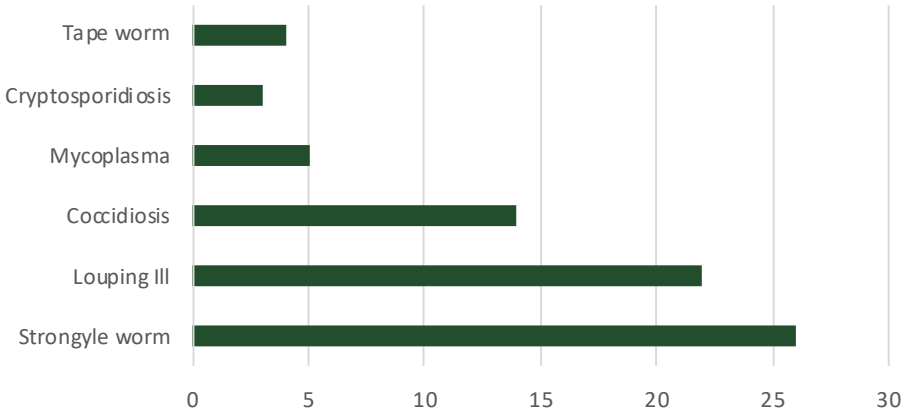


Figure 10: The Diseases and Parasites Routinely Monitored on Grouse Moors Covered by Study

Monitoring disease and parasites enables preventative action and, in some cases, treatment to be given to wild and domesticated animals at risk of illness, as well as those already suffering. All the moors in the study carried out monitoring of at least one disease or parasite.

The third question in this section asked whether water quality was regularly monitored. Encouragingly, water quality monitoring regularly takes place on 32 of the 58 moors in the sample. It is interesting to note that most moors that carry out water quality monitoring are not owned by water companies, or other utilities. Unexpectedly, one moor that is owned by a water company said that water quality was not routinely monitored.

Given the number of diseases that are caused by ticks to both wild and domestic animals, and people, (there are over 20 species of tick found in the UK, but the sheep tick (*Ixodes Ricinus*) is the most prevalent in upland areas)⁶⁷ it was relevant to ask how grouse moors tried to control their numbers. Moorland surveys show that a few, lucky, moors do not have a tick problem, but over 90% of the moors in the sample devoted time and resources to trying to reduce, or at least prevent the spread of the sheep tick. Table 15 gives the survey responses to the question, ‘What methods do you use to reduce tick numbers?’ As an interesting comparison, the RSPB does not attempt to control tick numbers on its Lake Vyrnwy reserve.

Method Used to Reduce Tick Numbers	Moors using Method
Grazing and dipping sheep	29
Bracken management	23
Deer culling	3

Table 15: Methods Used to Reduce Tick Numbers on Grouse Moors Covered by Study

It was very encouraging to note that only three keepers, out of 194, had had a tick-borne illness such as Lyme disease since 2021.

REFERENCES

⁶² See <https://www.gwct.org.uk/policy/position-statements/cryptosporidiosis/>

⁶³ See <https://www.nadis.org.uk/disease-a-z/game-birds/mycoplasma-bulgy-eye/#:~:text=Birds%20are%20seen%20coughing%20or,such%20as%20when%20being%20moved.>

⁶⁴ See <https://www.gwct.org.uk/advisory/guides/red-grouse-and-cryptosporidiosis/>

⁶⁵ See <https://www.farmhealthonline.com/disease-management/sheep-diseases/louping-ill/>

⁶⁶ See <https://www.gwct.org.uk/game/research/disease-and-welfare/strongyle-worms-and-strongylosis/>

⁶⁷ For an account of some of the most common diseases caused by sheep ticks, to both wild animals and people, see pages 65 and 66 of Sustainable Driven Grouse Shooting. Denny (2023).

REFERENCES

⁶⁸ The 11 red listed species are: grey partridge, lapwing, curlew, woodcock, hen harrier, merlin, skylark, mistle thrush, black grouse, ring ouzel and linnet.

⁶⁹ See <https://www.bto.org/our-science/publications/birds-conservation-concern>

Wild Birds on English Grouse Moors

Gamekeeper teams were asked two questions about wild birds on their moors; firstly, which were the most commonly occurring species, and secondly, how many birds of certain species had successfully raised young. The responses to these questions show that the environmental management, predator control and disease management carried out by keeper teams results in a rich and varied assemblage of wild birds being able to thrive on English grouse moors.

Survey respondents were firstly asked to list the most commonly occurring species of bird on their moor, *apart from red grouse*. The 58 moors identified 28 birds that commonly occurred, 10 of which were more (or much more) common than others, see Figure 11.

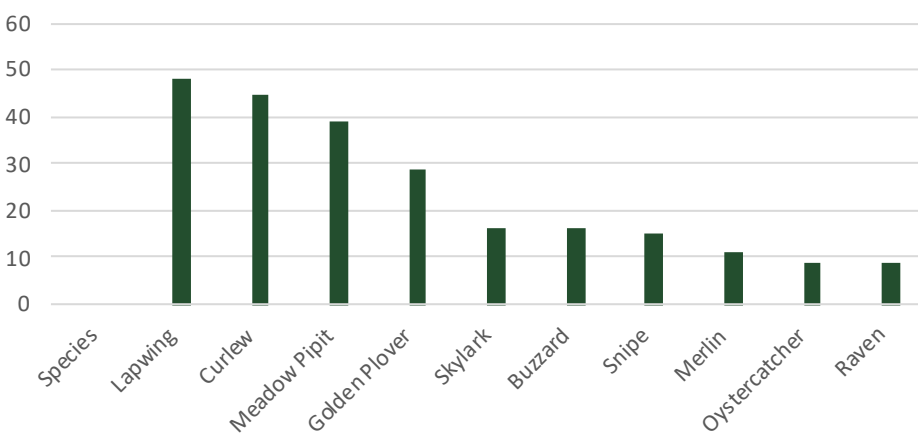


Figure 11: Most Commonly Occurring Bird Species on the 58 Grouse Moors Covered by Study

Other species listed as commonly occurring on some moors included pheasant (seven mentions), kestrel and black grouse (five mentions each), grey partridge, hen harrier, ring ouzel, wheatear, and woodcock (four mentions), redshank and stonechat (three mentions), barn owl and red kite (each mentioned twice), and tawny owl, blackbird, mistle thrush, linnet, and peregrine (mentioned once). It should be noted that, of the 28 commonly occurring bird species, 11⁶⁸ of them are red listed as Birds of Conservation Concern by the British Trust for Ornithology.⁶⁹ It seems that if you want to see increasingly rare birds, one of the best places to go is an English grouse moor.

Secondly, keepers were asked how many birds, from a list of species associated with moorland, had successfully fledged young on their moor, since 2021. The responses were, frankly, extraordinary. However, given that all the moors in the sample carried out surveys, that 55% of them had bought wildlife monitoring equipment in the last 12 months, and 40% of them employed external specialists for surveying, it is believed that the numbers provided are sound estimates.

Table 16 shows the responses to the question, ‘Over the last three years, how many of the following species of bird have successfully fledged young on your moor?’

Bird species	Pairs Successfully Fledging Young
Curlew	12,953
Lapwing	17,021
Oystercatcher	6,885
Redshank	1,441
Golden plover	6,656
Ringed plover	450
Snipe	1,025
Black grouse	1,022
Hen harrier	49
Merlin	514
Kestrel	940
Buzzard	1,078
Peregrine	66
Barn owl	166
Whinchat	1,114
Skylark	3,571

Table 16: Species Successfully Fledging Young on Grouse Moors Covered by Study

According to the British Trust for Ornithology, there are c. 59,000 pairs of the red-listed curlew in the UK.⁷⁰ The 58 moors in this study’s sample have, on less than 450,000 acres, over the last three years, fledged young equivalent to c. 12% of this population. Nearly 9% of the UK’s lapwing population, and over 10% of the UK’s golden plovers have fledged on these moors. It is beyond question that the grouse moors of England are vital for many species of bird, especially increasingly-rare waders. Peer-reviewed research carried out by the GWCT in 2023 identified that there were twice as many waders found on grouse moors compared with non-grouse moors. Redshank and golden plover were found on half of the 18 grouse moors studied, but only on 20% of non-grouse moors. Curlew occurred four times more frequently on grouse moors than on non-grouse moors.⁷¹ It is also worth noting that all the 58 moors contained populations of at least two species of successfully breeding raptors, with moors in the North Pennines, Forest of Bowland and Peak District having successfully fledged hen harriers. It is instructive to compare the data for curlew and golden plover on the 58 moors with the figures for the same species noted in 2024 at the RSPB’s reserve at Lake Vyrnwy in Wales. At Lake Vyrnwy the RSPB manages nearly 11,000 acres, most of which is moorland. **In 2024 just one pair of curlews nested, although it is not known if they successfully fledged chicks, and a golden plover was seen on the reserve, for the first time in 40 years.**⁷² The contrast is extraordinary.



REFERENCES

⁷⁰ See <https://www.bto.org/understanding-birds/birdfacts/curlew>

⁷¹ See <https://www.gwct.org.uk/wildlife/research/birds/waders/do-we-need-fox-and-crow-control-to-halt-curlew-declines-in-the-uk/> In addition to managing habitat, gamekeepers control the numbers of generalist predators, thus significantly increasing the likelihood of ground-nesting birds hatching eggs and fledging young.

⁷² Source: RSPB Lake Vyrnwy Reserve Manager.



The final question in the environmental management section of the survey asked keepers to describe the environmental outcomes that had resulted from their liaison with local farmers and other landowners. As expected, there was a great variety of answers, but eight common themes emerged, as shown in Figure 12.

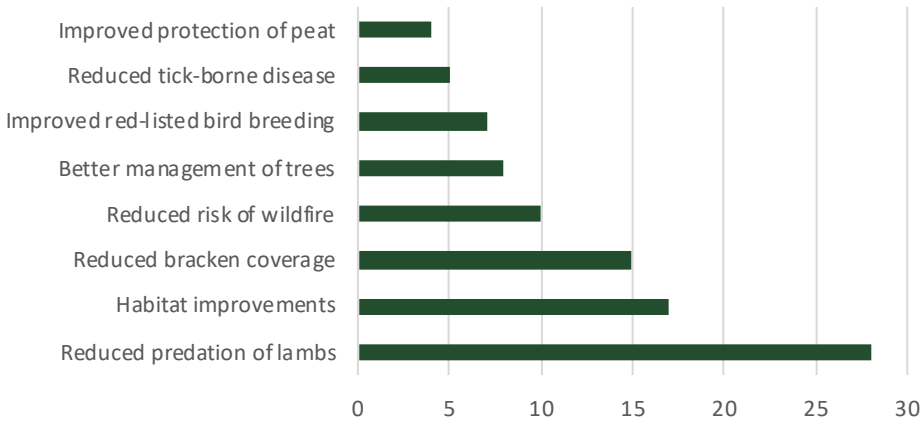


Figure 12: Environmental Outcomes Resulting from Gamekeepers Liaising with Farmers

The most frequently cited outcome resulting from keeper teams liaising with local farmers was a reduction in the predation of lambs due to more targeted predator control. This outcome is obviously important to livestock farmers as it directly improves their income. Habitat improvement, the next most cited outcome, includes managing heather, grass and shrubs to increase its value to both domestic animals and wildlife. Although reducing bracken coverage also improves habitat, it was interesting to note that keepers viewed it as a separate outcome; bracken is clearly seen as a specific problem. Reducing the risk of wildfire was an outcome cited by 10 keeper teams, and better management of trees (both removal and planting) was cited by eight moors. It was interesting to note that improving the breeding success of red-listed birds, reducing tick numbers and thus the diseases they carry, and improving protection for peat were cited by relatively few keepers (seven, five, and four citations respectively), but it is assumed that these outcomes have been issues that farmers and keepers have liaised about for decades.



The Social Impacts of Grouse Moors in England

REFERENCES

⁷³ The 2014 PACEC study into all types of shooting, found that the majority of the demographic group engaged in shooting (of all types) were male and over 40.

Exercise and Physical and Mental Health

Access to green spaces of any kind has been shown positively to impact people’s physical and mental well-being, and exercise outdoors has been shown to have a greater positive benefit than exercise taken indoors (Zhang, 2017; Fr hauf et al., 2016). Access to green spaces has been shown to help increase activity and reduce obesity (Coombes et al., 2010). Physical inactivity and obesity can lead to long-term conditions such as diabetes and cardiovascular disease (Leong and Wilding, 1999), which are costly to manage in the NHS. Outdoor exercise appears to be particularly important for men; it has been estimated

that only 40% of men complete moderate physical exercise (30 minutes a day, five or more days a week) (Pollard, 2010). It has been suggested the best form of exercise for men reluctant to take up physical activity is to find something they enjoy and can easily include in everyday activities, with walking being considered one of the best options (Pollard, 2010).⁷³ An analysis of 18 best observational studies, from a review of 4,295 studies on walking carried out since 1970, found walking reduced the risk of heart problems by 31% and the risk of death by 32% during the study period (Pollard, 2010). Spending time outdoors has also been shown to have positive mental well-being benefits (Fr hauf et al., 2016; Kerr et al., 2012).

Previous research has shown that regularly going onto a grouse moor can make a positive difference to the social and work lives, and health and well-being of those who use the moor, whether they take some part in grouse shooting or use the moor for other leisure activities (Denny and Latham-Green, 2020). The same research showed that many of these social impacts have a financial value, using calculations developed by health and other organisations, for example the NHS. Many people use the English moors for birdwatching and walking (McMorran et al., 2015). The RSPB has estimated that upland areas of the UK host 100 million day-visits per year (RSPB, undated). The data gathered for this report show that, in addition to walking and birdwatching, cyclists and trail runners are increasingly using the moors for legitimate leisure purposes. An understanding of the role of the upland keeper must, therefore, include looking at the number of people who regularly venture onto grouse moors to take exercise.

Community Identity and Well-being

The work of grouse moor gamekeepers in preserving and improving a landscape that is attractive and accessible is important to those who live locally, and to those who were brought up in rural areas. In upland areas, community cohesion is particularly important, as people and services are likely to be spread out. People living in the uplands tend to be connected economically, socially and culturally not only to the land, but also to those who manage it. Some have roles as custodians of the land and its natural assets (Gaskell et al., 2010). Moreover, people who live in rural communities such as the uplands tend to have a strong rural identity and sense of place, which they hold dear (Williams, 2011). An individual strong feeling of identity is associated with positive impacts on mental well-being. It can “provide individuals with a sense of meaning, purpose, and belonging (i.e. a positive sense of social identity)” which usually has positive psychological consequences (Haslam et al., 2009). Rural identity has been explored in prior research (Heley, 2010, 2011), with those involved in shooting expressing clear rural identities (Hillyard and Burridge, 2012; Latham-Green, 2020), valuing activities which were grounded in ‘rural realities’ (McMorran, 2009). Latham-Green’s (2020) study looking at the social impact of participation in driven game shooting found that 91.3% of participants surveyed (n=2424) felt a strong countryside identity, which was not dependent on residence in a rural area. UNESCO has identified intangible cultural heritage⁷⁴ (ICH), which relates to social practices, knowledge and seasonal events that some individuals and communities recognise to be part of their cultural heritage, as an important factor in the well-being of individuals (United Nations Educational, 2018). In his study into the Economic, Social and Environmental Contribution of Landowners in the Cairngorms National Park, McMorran (2013) found that participants felt grouse moor management contributed to



preservation of a ‘culturally significant activity and landscape’. In this 2013 study most respondents (75%) ‘agreed’ or ‘strongly agreed’ that grouse shooting was an important part of the culture and history of the community (McMorran et al., 2013), findings in line with his earlier work considering ‘Red grouse and the Tomintoul and Strathdon Communities’ where 81% of respondents felt that grouse shooting was a strong part of the community’s culture and heritage (McMorran, 2009).

Inter-generational relationships and the building of inter-generational understanding and respect have been recognised as an important element of social cohesion and social capital (Commission On Integration and Cohesion, 2007;⁷⁵ Hatton-Yeo and Batty, 2011). It has been recognised that communities can be strengthened with a positive impact for health and well-being, through inter-generational connection (O’Connor et al., 2019), an aspect explored in the current study. The presence of gamekeepers with young families getting involved in supporting community activities such as the highland games and regularly using local facilities (McMorran, 2009; McMorran, Bryce and Glass, 2015) contributes to

REFERENCES

⁷⁴ Intangible Cultural Heritage means the practices, representations, expressions, knowledge, and skills – as well as the instruments, objects, artifacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. <https://www.unesco.org/en/culture>

⁷⁵ See <https://image.guardian.co.uk/sys-files/Education/documents/2007/06/14/oursharedfuture.pdf>



REFERENCES

⁷⁶ This study was confined to Scotland, but there is no reason to suppose the findings do not apply to England.

⁷⁷ See <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/datasets/publicopinionsandsocialtrendsgratbritainpersonalwellbeingandloneliness>

⁷⁸ See <https://www.ama-assn.org/delivering-care/public-health/what-doctors-wish-patients-knew-about-loneliness-and-health#:~:text=Loneliness%20%E2%80%9Ccan%20have%20serious%20mental,memory%20issues%20and%20even%20death.%E2%80%9D>

ensuring a vibrant and active community in upland areas throughout the year, not just during the tourist season. The majority of McMorran's 2015 study⁷⁶ respondents believed there were community-level benefits of grouse shooting, with 70% in the Angus Glens and 53% in the Monadhliath noting community-level benefits, with only 8% in Angus Glens and 15% in the Monadhliath not noting any community benefits (McMorran, Bryce and Glass, 2015).

People with a shared identity, for example those who take part in driven game shooting (Latham-Green, 2020), or who live in upland communities with a strong cultural and heritage identity (McMorran, 2009; McMorran et al., 2013), have been shown to build strong friendships or 'social and community networks', based on their shared understandings and sense of belonging (Latham-Green, 2020). Social and community networks are another of the social determinants of health identified by Dahlgren and Whitehead (1991). Previous studies into upland communities have identified positive community support either facilitated by or directly provided by estates and ways to further enhance this support (McMorran, 2009; McMorran et al., 2013; McMorran, Bryce and Glass, 2015). Denny and Latham-Green (2020) found that there was a statistically significant difference

indicating that individuals who take part in grouse shooting across a range of roles had statistically significantly higher well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than the national average. Given that the responses to the questions asked by the 2020 study were gathered during the pandemic, it is suggested that the find is highly significant.

The Office for National Statistics gathers data about loneliness. In October 2024, 28% of respondents said that they felt lonely 'always' or 'some of the time'.⁷⁷ According to the American Medical Association, loneliness can have serious mental and physical complications that worsen if ignored. Social isolation and loneliness lead to higher risk of high blood pressure, heart disease, obesity, anxiety, depression, memory issues and even death,⁷⁸ (Valtorta et al., 2018). An interestingly relevant 2016 study looking into all types of shooting found that the average number of friends made through involvement in shooting activity was 20. Without shooting, 68% of respondents said meeting new people would be harder, 63% said making new friends would be harder, 62% said maintaining friendships would be harder, and 77% said their social life in general would be poorer. An overwhelming 97% of

respondents said they regularly mixed with at least one person due to their shooting activity. Of those who primarily shot driven game, beaters and pickers-up mixed with 30 or more people on a regular basis through shooting (BASC, 2016). Loneliness is something explored in this report as the overall costs of loneliness for each individual person were calculated in 2017 as being c.£6,000 over 10 years (Mcdaid et al., 2017). Adjusting for inflation, the equivalent figure in 2024 is c. £7,840 over 10 years. It should be noted that Denny and Latham-Green (2020) found that there was a statistically significant difference indicating that individuals who live in upland, moorland communities managed for grouse shooting had a statistically lower level of loneliness than the national average, an indicator of a strong community support networks for individuals living in these areas. The 2024 Value of Shooting report found the same result.⁷⁹

The survey developed for the current study asked questions designed to test some of the results of previous research about exercise and community identity and physical and mental wellbeing. Additional questions were designed to identify how often grouse moor gamekeepers had to come to the aid of people using the moors for leisure activities.

As noted above, it has been recognised that communities can be strengthened, with a positive impact for health and well-being, through inter-generational connection. This study asked keeper teams to estimate⁸⁰ the ages of people that took part in a driven grouse day on their moor, see Figure 13. It is, of course, to be expected that most of those involved are aged between 20 and 69, but the large numbers of young children and old people (aged 70 or more) involved is both surprising and encouraging in terms of inter-generational contact. There is an important point here, the Guns (those shooting and paying for the pleasure) are funding an activity that brings generations and communities together. Moreover, people

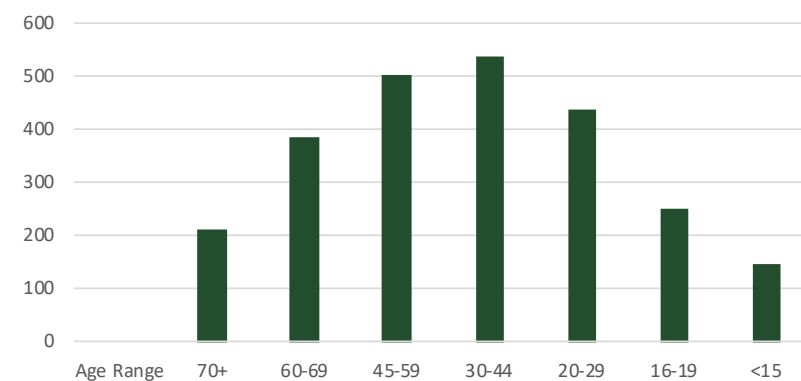


Figure 13: The Ages in Years of People Involved in a Driven Grouse Day, but not Shooting

are playing an active role, working together as part of team, and not simply spectating. The author struggles to think of any other leisure activity that provides the same level of connections between the ages.

As was explained earlier in this report, people involved in driven grouse shooting have different roles to play, although the majority act as beaters. Knowing that physical exercise, especially walking, leads to better physical and mental health, keepers were asked how far beaters would walk on a typical driven grouse day. The distances cited by the 58 moors ranged from a low of five miles, to an upper figure of 18 miles. The average mean distance was 12.5 miles, with the mode being 12 miles. The number of times moors run driven days in a good year for grouse varies from single figures to 50, so the great majority of beaters will walk c. 12 miles many times over the shooting season, especially if they beat on more than one moor, which many do. Moreover, beaters are walking over rough ground, through thick vegetation and up and down slopes. They are getting considerably more exercise than somebody doing 12 miles on a treadmill in a gym! There is another important point here: in years when the numbers of grouse do not permit shooting on most moors (such as 2024), there is probably a negative impact on the health and well-being of beaters, as it is most unlikely they will be taking as much vigorous exercise in the company of others.

REFERENCES

⁷⁹ See <https://basc.org.uk/the-value-of-shooting-report-2024/>

⁸⁰ Keepers will obviously not know exactly how old every of the, up to 80, people involved in a driven grouse day are.



REFERENCES

⁸¹ See Economic Impact section.

⁸² This category includes people that have retired from work.

⁸³ Inevitably, the figures provided by the keepers in answer to this question are informed estimates. It should be remembered though that keepers are a constant presence on their moors.

The negative impacts of unemployment, poverty, illness and loneliness on health and well-being are well known. As most of those taking part in a driven grouse shooting day (excluding the Guns) live close to the moors,⁸¹ most of them live in relatively remote villages and hamlets with few services. The social benefits of driven grouse shooting, including inter-generational contact and exercise, can thus be expected to be particularly important for the minority of support staff, such as beaters, who are workless, poor, sick, and lonely. Keeper teams were asked to state how many people involved in a typical driven grouse day did they *know* fell into at least one of these categories. The results, presented in Table 17, are humbling.

Although the numbers presented in Table 17 are not large, the financial and social implications of these conditions matter. For example, as noted above it has been calculated that the overall cost to the state of loneliness for a person over 10 years is c. £7,840. Therefore, the 216 lonely people identified by the keepers represent a cost to the state of £1,693,440, again over 10 years.

Numbers of People Involved in Driven Grouse Shooting who are:	Totals
Living in poverty	92
Unemployed, but not living in poverty ⁸²	244
Suffering from a mental illness	110
Suffering from a physical illness	124
Suffering from loneliness	216

Table 17: Number of People Involved in Driven Grouse Shooting with Economic, Social or Medical Problems

Although in the context of expenditure on the National Health Service this figure is almost irrelevant, if taking part in driven grouse shooting reduces loneliness then it is a social good that must be celebrated; especially as it is free to the taxpayer, with the Guns paying the cost of a day. Not only do Guns pay for the positive economic and environmental impacts resulting from driven grouse shooting, they also fund significant social benefits which are especially important to the most disadvantaged in our society.

The number of people that take part in driven grouse shooting on moors in the RMGs is relatively small although, as noted above, in many moorland settlements it is an important activity for many inhabitants. However, the work of the keeper teams means that the 58 moors in the survey are accessible all year round by members of the public; every moor in the sample had at least one public footpath crossing it. As noted earlier, not all moors are the same and there are some which are not near major towns or cities and do not have major national footpaths crossing them. Therefore, the numbers using them for non-shooting activities will be very many fewer than those in, for example, the Peak District.

The keeper teams were asked to say, to the best of their knowledge,⁸³ how many people visited their moor in a typical year for various leisure activities. The answers varied so greatly that calculating any average figure was meaningless. Therefore, the maximum and minimum usage for four legitimate activities is presented in Table 18.

Activity	Maximum number	Minimum number
Walking or running	500,000 plus	3,500
Cycling	100,000 plus	220
Bird watching	10,000	12
Educational/research purposes	2,000	12

Table 18: Numbers of People Enjoying Leisure Activities on the 58 Moors Covered by Study

Millions of people visit the grouse moors of England each year for leisure activities. They are able to do so because large sums of money are spent on maintaining tracks and paths to provide access, and on the management of flora and fauna to provide an attractive and interesting landscape. The physical and mental health benefits that these people gain are enormous and have a vast, but incalculable, financial benefit to individuals and society. These benefits, a by-product and consequence of the work of gamekeepers, are the major contribution of grouse moors to the citizens of the UK. They should not be underestimated and must not be ignored.

If millions of people visit grouse moors each year, it is inevitable that some will get into difficulty. The survey explored the extent to which gamekeepers were the ‘first responders’ to people that had medical or other troubles. The responses to the question, ‘How many times over the last 12 months has a member of the keeper team had to help people (not those that are involved in shooting) who...’, show that gamekeepers had helped people on 1,502 separate occasions, broken down as shown in Table 19.

As expected, the moors in more populous areas experienced the highest number of incidents, for example 85% of people who were assisted because they were lost came from moors in the Peak District (n=285), the North Yorkshire Moors (n=160) or the Yorkshire Dales (n=107). People in the Peak District are particularly prone to losing their dogs (n=208, 58% of the total).

People who required rescuing were those who had somehow got stuck, for example in a bog, on a steep hillside or, on one occasion, high up on a narrow ledge. This category was separate from those requiring first aid or medical assistance where help provided by keepers ranged from treating minor cuts and abrasions, to evacuating people with broken limbs or suffering from heart attacks. It is worth noting that, as part of their professional development, gamekeepers undertake first aid training and relevant refresher courses. They also carry first aid kits in their vehicles. To repeat a point made earlier, keepers are a constant presence on grouse moors, in contrast with the employees of the conservation charities or utilities which own or manage moors.

Keepers Helping People who:	Number of recorded incidents
Were lost	646
Had lost a member of their party	64
Required first aid or medical assistance	88
Required rescuing	63
Had a broken-down vehicle	162
Had a stuck/bogged-down vehicle	121
Had lost their dog	358

Table 19: People that Required Help from Gamekeepers in a 12 Month Period



The Achievements Valued by Gamekeepers

The final question in the survey asked an open question: ‘Over the last three years, what had the keeper teams achieved that they were especially proud of?’

Most respondents listed three or fewer things they were proud of, although a few keepers listed more than six. As would be expected, teams from the 58 different moors described a wide variety of achievements, but nine of these were mentioned by five or more respondents, as shown in Figure 14.

REFERENCES
⁸⁴ Other wader species were mentioned by a very few keepers, but curlews were specifically mentioned by almost half the sample. The curlew is clearly an iconic bird for gamekeepers.

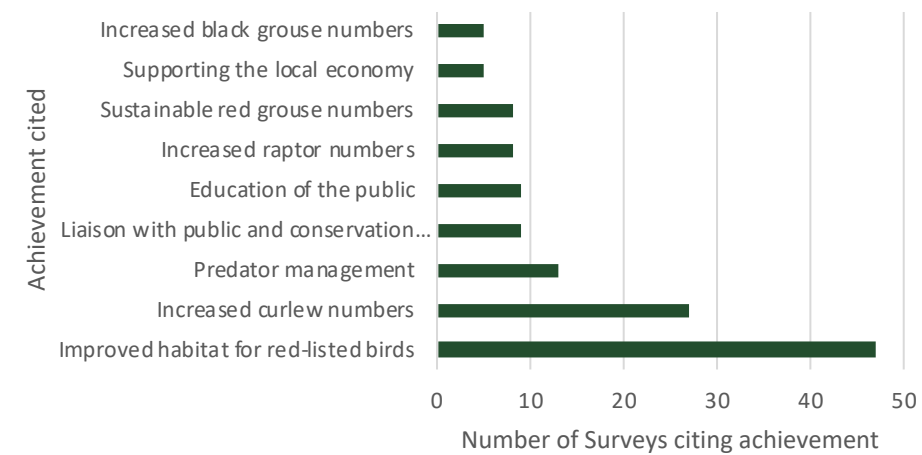


Figure 14: The Achievements Gamekeepers were Most Proud Of

The results displayed in Figure 14 reveal how important the environmental management work they do is to keepers. Improving habitat for red-listed birds, increasing curlew numbers,⁸⁴ controlling predators, increasing raptor and black grouse numbers, and producing sustainable numbers of red grouse (to permit shooting) are all achievements keepers were proud of, and they result from effective environmental management. It is notable that as many keeper teams were proud of the work they had done to increase raptor numbers (hen harriers, merlin and osprey were all named) as were proud of their achievements with the number of red grouse (cited by eight teams in each case). Educating the public, including children, about the work they do, and liaising with the general public and conservation organisations were achievements each viewed with pride by nine keeper teams. Five teams were particularly proud of how they had supported their local economies, including one team which described how every bird shot on their moor was processed and consumed locally. Perhaps the following quote from a keeper in the Yorkshire Dales could be applied to all the grouse moor gamekeepers in this study: **“I think a grouse moor is the best conservation model in the world. Being part of it makes me very proud.”**



An Extrapolation of Economic and Environmental Impacts

REFERENCES

⁸⁵ The area inside the M25 is approximately 1,100 square miles, which is 704,000 acres https://math.answers.com/geometry/How_many_square_miles_inside_m25

⁸⁶ See <https://www.gov.uk/government/collections/national-nature-reserves-in-england>

⁸⁷ See <https://www.rspb.org.uk/whats-happening/news/reserves-highlights>

⁸⁸ See https://en.wikipedia.org/wiki/List_of_RSPB_reserves

⁸⁹ Note that this figure is based on the 42 moors that provided data.

⁹⁰ Beaters, pickers up, drivers, caterers etc.

⁹¹ Not including money paid to beaters and pickers up, and in a good year for grouse.

As noted in The Respondents section of this report, the sample of moors covered by the survey (n = 58) is representative of the members of the RMGs (n = 140). It is interesting to extrapolate some of the economic and environmental impacts delivered by the 58 moors to the other 82 members of the RMGs. It must be stressed that this extrapolation is based on figures many of which are indicative.

Area Covered by RMG moors: Size Matters

The 58 moors that completed the survey have a total area of 444,370 acres with a mean average size of 7,662 acres. Based on this mean average size, the remaining 82 moors are likely to have an indicative total area of 628,284 acres, meaning that the 140 RMG moors cover approximately 1,072,654 acres, an area bigger than Hampshire (1,070,216 acres), and a third bigger than the area inside the M25 (c. 704,000 acres).⁸⁵ *Given the positive environmental impacts of the 58 moors covered by the study, it must be pointed out that all 140 RMG moors cover an area nearly four times bigger than the combined area of the 221 National Nature Reserves in England, whose total area is c. 271,816 acres.*⁸⁶ *They also cover an area nearly three times the size of all the 222 RSPB reserves in the UK (c. 392,897 acres),⁸⁷ and only 82 of the RSPB’s reserves are in England.*⁸⁸



Economic Impact Extrapolations

Six calculations of the potential economic impact of the 82 RMG moors not covered by this report’s survey have been carried out. These are shown in Table 20, together with an estimated total impact of all 140 RMG moors.

Impact	Value of 58 Moors £	Extrapolated Value of 82 Moors £	Extrapolated Total Value of RMG Moors £
Expenditure with contractors	7,398,000 ⁸⁹	14,432,000	21,830,000
Money earned by beaters and pickers up	1,700,000	2,403,420	4,103,420
Income from shooting (fees paid by Guns)	36,801,000	52,029,000	88,830,000
Expenditure of Guns and partners with hospitality businesses	1,225,980	1,733,234	2,959,214
Expenditure of support staff ⁹⁰ with hospitality and retail businesses	1,533,540	2,168,080	3,701,620
Total expenditure generated by grouse shooting⁹¹	48,658,520	72,765,734	121,424,254

Table 20: Six extrapolations of economic impacts of RMG members

It must be noted that the figures in Table 20 are only indicative. However, they are based on large amounts of data provided by a representative sample of experienced gamekeeper teams managing the grouse moors of England. At the risk of repetition, it must also be stressed that the majority of this expenditure is going to local people and businesses in rural, mainly remote areas, mainly at times outside the main holiday seasons. Grouse shooting in England is very high value tourism.

Environmental Impact Extrapolations

Two calculations of the potential environmental impact of the 82 RMG moors not covered by this report’s survey have been carried out. These are shown in Table 21.

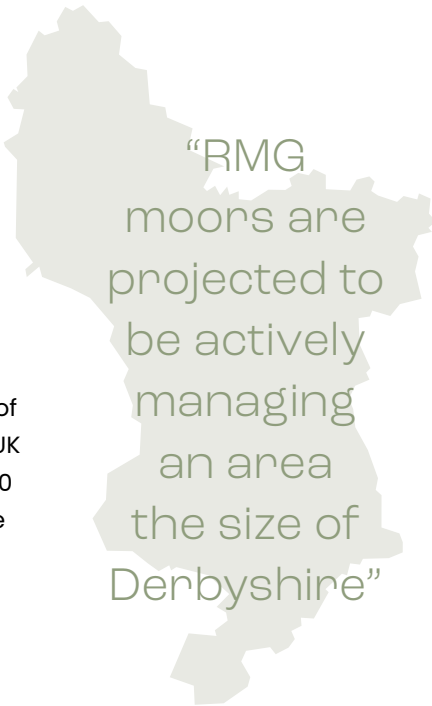
Impact	Area Covered by 58 Moors (acres)	Extrapolated Area Covered by 82 Moors (acres)	Extrapolated Total Area Covered by RMG Moors (acres)
Active vegetation management (see Table 12 for list of management methods)	273,326	386,425	659,751
Moorland habitat improvement (see Table 13 for list of habitat improvement measures)	186,098	263,105	499,203

Table 21: Two extrapolations of environmental impacts of RMG members

To give an idea of the scale of the environmental impacts shown in Table 21, each year the RMG moors are projected to be actively managing an area the size of Derbyshire, and improving the habitat on an area the size of Berkshire. These are very large areas of land.

The active management and habitat improvement managed out by the 58 gamekeeper teams that responded to the survey has resulted in large numbers of red-listed and other species of birds finding grouse moors attractive and safe places to nest and successfully fledge young (see Table 16). It is instructive to, tentatively, calculate the numbers of two of these red-listed wading birds that are found on the 140 RMG moors. Based on the data in Table 16 it is estimated that c. 31,200 pairs of curlews and 41,000 pairs of lapwings nest on RMG moors. The British Trust for Ornithology estimates that the UK population of curlews is c. 59,000 pairs⁹² and the population of lapwing is c. 98,000 pairs.⁹³ Therefore, approximately 53% of the UK’s curlew population and 42% of the UK’s lapwing population are found on the English grouse moors covered by the RMG. Given that curlew numbers have declined by 50% since 1995 and lapwings have declined by 62% since 1967, it is obvious that the moorland management carried out by gamekeepers is vital for these (and other) birds.

These economic and environmental extrapolations, although indicative, highlight the value of the work of grouse moor gamekeepers in England. The work gamekeepers do to improve the breeding success of the red grouse, one of the only nine bird species endemic to the UK, has a major and beneficial impact on the economies of many rural areas of England and is vital for the biodiversity of its heather moorlands, not least for ground-nesting birds.



REFERENCES

⁹² See <https://www.bto.org/understanding-birds/birdfacts/curlew>

⁹³ See <https://www.bto.org/understanding-birds/birdfacts/lapwing>

English Grouse Moors and 30by30

REFERENCES

⁹⁴ See <https://defraenvironment.blog.gov.uk/2024/10/29/englands-vision-and-criteria-for-30by30-on-land-launched-at-cop16/>

⁹⁵ See <https://www.gov.uk/government/publications/criteria-for-30by30-on-land-in-england/30by30-on-land-in-england-confirmed-criteria-and-next-steps#our-vision-for-30by30-on-land-in-england>

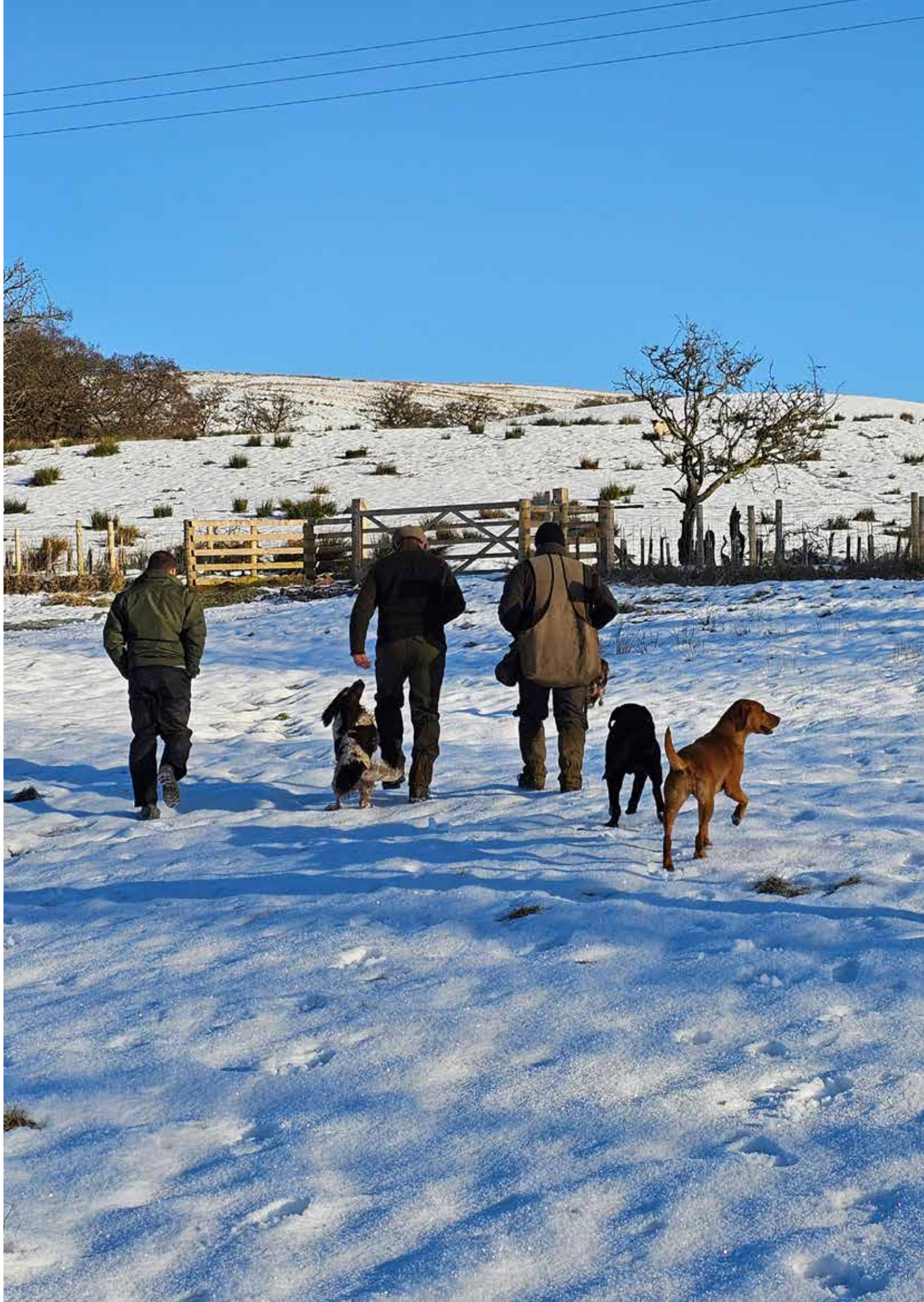
⁹⁶ See <https://www.gov.uk/government/publications/criteria-for-30by30-on-land-in-england/30by30-on-land-in-england-confirmed-criteria-and-next-steps#areas-that-currently-count-towards-30by30>

In October 2024, the Government published its 30by30 policy paper for England at the UN Biodiversity Summit (CBD COP16).⁹⁴ The policy paper, part of the Global Biodiversity Framework, commits England to “effectively conserve and manage 30% of our land and seas by 2030, and sits at the heart of our aim to ensure nature’s recovery”. The paper points out that without nature there is, “no economy, no food, no health and no society”.

30by30 areas are defined as those that, “should be able to demonstrate that their purposes or management objectives will ensure the delivery of in-situ conservation outcomes. The area’s purposes should include in-situ conservation, but this may not be its primary or sole purpose,” and these areas, “should be able to demonstrate that in-situ conservation will be sustained over the long term (at least 20 years), and that the area will be protected against loss or damage to important biodiversity values, through legal or other effective means. This includes protected area designations, conservation covenants, long-term ownership and relevant long-term management obligations”.⁹⁵

An initial review of land in England that counts towards the 30by30 target has been carried out by the Government. The review has included SSSIs that are in ‘favourable’ or ‘unfavourable recovering’ condition, and additional areas beyond SSSIs (public woodland under favourable management for biodiversity, and National Nature Reserves). The indicative results of the initial review suggest that 7.1% of England’s area counts towards the target.⁹⁶

As noted above, the 140 RMG moors cover c.1,072,654 acres, approximately 3.33% of the area of England. These 140 moors include at least 314,112 acres of SSSI and thus will already be contributing to the 30by30 target. This study’s findings about the environmental impacts of grouse moors strongly suggest that many RMG moor areas will also contribute significantly to the 30by30 target, even those areas that do not have SSSI designation. It is suggested that assessing the contribution of RMG moors towards the 30by30 target is undertaken as a matter of some urgency.





Conclusions

This report has identified that the 58 moors covered by the study generate c. £47 million in years when grouse are shot and, as noted above, this figure does not include the c. £1.7 million paid to loaders, beaters, pickers-up and the other ‘supporting staff’ who enable grouse shooting to take place. Even when grouse shooting is not possible, contractors supplying indoor and outdoor services are able to earn at least £7.5 million. Most of this money goes to businesses and individuals who operate and live within 20 miles of a grouse moor in rural and often remote areas. The work of gamekeepers has a positive and significant impact on their local economies. The total expenditure of the RMG’s 140 moors, in years when grouse numbers are sufficient to permit shooting, is estimated to be as much as £121 million. No other leisure activity generates anything like the same impact on rural economies.

Although their economic impact is significant, the environmental impact of gamekeepers is hugely beneficial and probably essential for a number of red-listed ground-nesting bird species. Each year the 58 moors are collectively actively managing the flora in an area the size of Bedfordshire, and since 2021 an area bigger than Middlesex has been improved in some way. The results of their work, which is often closely monitored by external agencies, on the bird life of the moor is dramatic and crucial for the survival of many, increasing rare, species. The 140 RMG moors cover an area nearly four times bigger than the combined area of the 221 National Nature Reserves in England, and a very much greater area than the 82 RSPB reserves in England. It is estimated that approximately 53% of the UK’s curlew population and 42% of the UK’s lapwing population are found on the English grouse moors covered by the RMGs. These moors are nationally, indeed internationally, important for birds, especially ground-nesting species.

Gamekeepers do not just care about grouse; they enable many species of waders, raptors and passerines to thrive. Gamekeepers are rightly proud of the environmental management they do, and the results they achieve on England’s globally-important heather moorlands. The 140 moors that are members of the RMGs are making, and will make, an important contribution to England’s 30by30 targets.

Although access to the moors does not depend on gamekeepers, the work they do maintaining paths and tracks, and the attractive and richly diverse flora and fauna they support, mean that millions of people are able to enjoy leisure activities on moors. These activities result in very large, but incalculable health and well-being benefits which result in significant savings to health budgets.



Gamekeepers do not operate in isolation. They constantly work with farmers and graziers, conservation organisations, countryside groups and contractors to manage their moors effectively. They work hard to explain what they do and the results that they achieve to local groups and individuals. Their work, and its outcomes, are monitored and studied by many different agencies.

Gamekeepers are a constant presence on their moor. Therefore, they both help people in distress (over 1,500 in the last 12 months) and ask those people who are abusing the moor to desist. Some keepers pay a heavy price for their efforts to correct behaviour; threats and abuse are common and, on average, a gamekeeper working on one of the 58 moors covered by this study is assaulted every 12 days.

What if there were no gamekeepers on these grouse moors? Would the same positive economic, environmental and social impacts result? The answer must be ‘no’. Grouse shooting should be seen as very high-value tourism; no other group using the moors for leisure activity spends as much as those who shoot grouse. The environmental outcomes achieved by gamekeepers are not matched by other individuals or organisations who manage moorland, especially the numbers of waders. The health and well-being benefits gained by millions of people who use the moors for leisure activity are greatly enhanced by the access and habitat that gamekeepers provide.

This study concludes that the work done by gamekeepers on English grouse moors is economically and socially valuable, and environmentally crucial. The work of these gamekeepers, and the impacts they have, should be more widely known, and celebrated.

“The total expenditure of the RMG’s 140 moors, in years when grouse numbers are sufficient to permit shooting, is estimated to be as much as **£121 million** No other leisure activity generates anything like the same impact on rural economies.”

Recommendations

This study has produced new and detailed information about the many roles that grouse moor gamekeepers play, and the importance of those roles for their local economies, the rich biodiversity of their moors, and the health and well-being of hundreds of thousands of people.

Four recommendations are made:

- 1** The key points of the study are disseminated, in a concise form, to policy makers (politicians and civil servants at national and local level), conservation and heritage organisations, utility companies, and other entities which either own, or are responsible for, areas of moorland.
- 2** The results of the study should be shared with organisations representing private owners of moorland e.g. the Moorland Association, estate managers, the GWCT, BASC, the NGO and other parties involved in the practical management of the English moorlands.
- 3** Assessing the contribution of RMG moors towards the 30by30 target is undertaken as a matter of some urgency.
- 4** The report should be disseminated, both online and in hard copy, to the gamekeepers who took part in the study and their colleagues in the RMGs.

References

- Arkle R.S., Pilliod D.S. & Welty J.L. (2012) Pattern and process of prescribed fires influence effectiveness at reducing wildfire severity in dry coniferous forests. *Forest Ecology and Management*, **276**:174–184.
- Barber-Lomax A., Battye R., Gibson S., Castellnou M., & Bachfischer M. (2022) Peak District National Park Wildfire Risk Assessment.
- Belcher C.M., Brown I., Clay G.D., *et al.* (2021) UK wildfires and their climate challenges. Expert Led Report Prepared for the third Climate Change Risk Assessment.
- Bulman, C.J. & Bourn, N. (2005). *Bracken for butterflies*. Butterfly conservation. Wareham, Dorset, UK.
- Chambers F., Crowle A., Daniell J., *et al.* (2017) Ascertaining the nature and timing of mire degradation: using palaeoecology to assist future conservation management in Northern England. *AIMS Environmental Science*, **4**(1):54–82.
- Clauson-Kaas, F., Ramwell, C., Hansen, H.C.B. Strobel, B.W. (2016). Ptaquiloside from bracken in stream water at base flow and during storm events. *Water Research*, **106**, 155–162.
- Coombes, E., Jones, A. P. and Hillsdon, M. (2010) 'The relationship of physical activity and overweight to objectively measured green space accessibility and use', *Social Science & Medicine*. Pergamon, 70(6), pp. 816–822.
- Dahlgren, G. and Whitehead, M. (1991) *Policies and strategies to promote social equity in health*. Available at: https://www.researchgate.net/profile/Goeran_Dahlgren/publication/5095964_Policies_and_strategies_to_promote_social_equity_in_health_Background_document_to_WHO_-_Strategy_paper_for_Europe/links/569540f808aeab58a9a4d946.pdf
- Denny, S. and Latham-Green, T., 2020. What Impacts does Integrated Moorland Management, including Grouse Shooting, have on Moorland Communities. *A Comparative Study*.
- Denny, S. (2023) Sustainable Driven Grouse Shooting: A review of the evidence of the economic, environmental and social sustainability of driven grouse shooting. A guide for stakeholders and policy makers: Second edition, Regional Moorland Groups <https://www.regionalmoorlandgroups.com/research>
- Fielding, D., Newey, S., Pakeman, R.J., Miller, D., Gagkas, Z., Matthews, K. and Smith, S.W., 2024. Limited spatial co-occurrence of wildfire and prescribed burning on moorlands in Scotland. *Biological Conservation*, 296, p.110700.
- Frühauf, A. *et al.* (2016) 'Acute effects of outdoor physical activity on affect and psychological well-being in depressed patients – A preliminary study', *Mental Health and Physical Activity*. Elsevier, 10, pp. 4–9.
- Gaskell, P. *et al.* (2010) 'Economic and environmental impacts of changes in support measures for the English Uplands: An in-depth forward look from the farmer's perspective – Final Report to Defra'. Defra.
- Game & Wildlife Conservation Trust (GWCT) 2019, The Moorland Balance: The Science Behind Grouse Shooting and Moorland Management, Second Edition, Fordingbridge.
- Harris, L.B., Drury, S.A., Farris, C.A. & Taylor A.H. (2021) Prescribed fire and fire suppression operations influence wildfire severity under severe weather in Lassen Volcanic National Park, California, USA. *International Journal of Wildland Fire*, **30**(7): 536–551.
- Haslam, S. A. *et al.* (2009) 'Social Identity, Health and Well-Being: An Emerging Agenda for Applied Psychology', *Applied Psychology*, 58(1), pp. 1–23
- Hatton-Yeo, A. and Batty, C. (2011) 'Evaluating the contribution of intergenerational practice to achieving social cohesion', in *Promoting social cohesion. Implications for policy and evaluation*. Policy Press, pp. 243–258.
- Heinemeyer A., Vallack H.W., Morton P.A., *et al.* (2019) Restoration of heather-dominated blanket bog vegetation on grouse moors for biodiversity, carbon storage, greenhouse gas emissions and water regulation: comparing burning to alternative mowing and uncut management. Final BD5104 Report to Defra; SEI, University of York, UK.
- Heinemeyer A., David T. & Pateman R. (2023) Restoration of heather-dominated blanket bog vegetation for biodiversity, carbon storage, greenhouse gas emissions and water regulation: comparing burning to alternative mowing and uncut management. Final 10-year Report to the Peatland-ES-UK Project Advisory Group.

References cont...

Heley, J. (2010) 'The new squirearchy and emergent cultures of the new middle classes in rural areas', *Journal of Rural Studies*. Pergamon, 26(4), pp. 321–331.

Heley, J. (2011) 'On the Potential of Being a Village Boy: An Argument for Local Rural Ethnography', *Sociologia Ruralis*. Wiley/Blackwell (10.1111), 51(3), pp. 219–237. Heley, J. (2010) 'The new squirearchy and emergent cultures of the new middle classes in rural areas', *Journal of Rural Studies*. Pergamon, 26(4), pp. 321–331. doi: 10.1016/J.JRURSTUD.2010.03.002.

Heley, J. (2011) 'On the Potential of Being a Village Boy: An Argument for Local Rural Ethnography', *Sociologia Ruralis*. Wiley/Blackwell (10.1111), 51(3), pp. 219–237. doi: 10.1111/j.1467-9523.2011.00534.x.

Hillyard, S. and Burrridge, J. (2012) 'Shotguns and Firearms in the UK: A Call for a Distinctively Sociological Contribution to the Debate', *Sociology*, 46(3), pp. 395–410

Kerr, J., Marshall, S., Godbole, S., Neukam, S., Crist, K., Wasilenko, K., Golshan, S. and Buchner, D., 2012. The relationship between outdoor activity and health in older adults using GPS. *International journal of environmental research and public health*, 9(12), pp.4615–4625.

Latham-Green, T. (2020) *Understanding the Social Impact of Participation in Driven Game Shooting in the UK (Unpublished)*. University of Northampton.

Lawton, J. H. & Varvarigos, P. (1989). *Socio-economic Aspects of Bracken Control*. MAFF, London (unpublished report).

Leong, K. S. and Wilding, J. P. (1999) 'Obesity and diabetes', *Best Practice & Research Clinical Endocrinology & Metabolism*. Baillière Tindall, 13(2), pp. 221–237

Louangrath, P. (2017) Minimum sample size method based on survey scales. *Int. J. Res. Methodol. Soc. Sci.*, 3(3), pp.44–52.

Marrs, R.H. & Watt, A.S. (2006). Biological flora of *Pteridium aquilinum*. *J. Ecol.*, **94**, 1272–1321.

Macdonald, D.W., Daniels, M.J., Driscoll, C., Kitchener, A. & Yamaguchi, N. (2004). The Scottish Wildcat: Analyses for Conservation and an Action Plan. Wildlife Conservation Research Unit, University of Oxford, Oxford.

Mcdaid, D., Bauer, A. and Park, A.-L. (2017) *Making the economic case for investing in actions to prevent and/or tackle loneliness: a systematic review*. Available at: <http://www.lse.ac.uk/business-and-consultancy/consulting/assets/documents/making-the-economic-case-for-investing-in-actions-to-prevent-and-or-tackle-loneliness-a-systematic-review.pdf>

McMorran, D. R. et al. (2013) *The Economic, Social and Environmental Contribution of Landowners in the Cairngorms National Park. Commissioned by the Cairngorms National Park Authority and Scottish Land and Estates*.

McMorran, R. (2009) 'Red grouse and the Tomintoul and Strathdon Communities Group'.

McMorran, R., Bryce, R. and Glass, J. (2015) *Grouse shooting, moorland management and local communities. Community Perceptions and Socio-Economic Impacts of Moorland Management and Grouse Shooting in the Monadhliath and Angus Glens. Commissioned Report*.

Milligan, G., Booth K.E., Cox, E.S., Pakeman, R.J., Le Duc, M.G., Connor, L., Blackbird, S. & Marrs, R.H. 2018 Changes to ecosystem properties brought changing the dominant species: impact of *Pteridium aquilinum*-control and heathland restoration treatments on selected soil properties. *J. Environ. Manag.*, **207**, 1–9.

Natural England (2009) *Mapping values: the vital nature of our uplands – an atlas linking environment and people – NE209*. Available at: <http://publications.naturalengland.org.uk/publication/47001>

Natural England (2010). The Animal Welfare Act 2006: what it means for wildlife. Natural England Technical Information Note TIN072. Natural England, Peterborough

O'Connor, J. P. et al. (2019) 'Intergenerational understandings of personal, social and community assets for health', *Health and Place*. Elsevier Ltd, 57, pp. 218–227.

Pakeman, R.J. & Marrs, R.H. (1992). The conservation value of bracken, *Pteridium aquilinum* (L.) Kuhn) – dominated communities in the UK, and an assessment of the ecological impact of bracken expansion or its removal. *Biol. Conserv.*, 62, 101–114.

Pollard, J., 2010. No sweat... encouraging reluctant men to exercise. *Practice Nurse*, 39(10), pp.16–18.

Rahman, M.M. (2023) Sample size determination for survey research and non-probability sampling techniques: A review and set of recommendations, *Journal of Entrepreneurship, Business and Economics*, 11:1, pp. 42–62

Ruffer, J.G. (1977) *The Big Shots*, Debrett-Viking, New York

Sheaves, B.J. & Brown, R.W. (1995). *Densities of Ixodes ricinus ticks (Acari: Ixodidae) on moorland vegetation communities in the UK. Exp & Appl Acar.*, **19**, 489–497.

Sotherton, N., May, R. and Ewald, J., 2009. Managing uplands for game and sporting interests: an industry perspective. In *Drivers of environmental change in uplands* (pp. 269–288). Routledge.

Stanford, J.K. (1968) *The Complex Gun*, Pelham, London

Tharme, A.P., Green, R.E., Baines, D., Bainbridge, I.P. and O'Brien, M., 2001. The effect of management for red grouse shooting on the population density of breeding birds on heather-dominated moorland. *Journal of Applied Ecology*, 38(2), pp.439–457.

Thomson, S., McMorran, R., Glass, J., McMillan, J. and Spencer, M., 2020. The Employment Rights of Gamekeepers. *Commissioned Report to the Scottish Government*.

Thompson P.S. and Wilson, J.D., A review of recent evidence on the environmental impacts of grouse moor management. (No date, but updates a 2016 report, so presumably c. 2020)

Vaidotas, K., Drejer M., Dornhoff, J.K., Mrkajic, N.S., Lindqvist, D.N., Hansen, H.C.B. & Rasmussen, L.H. 2022. Occurrence and stability of ptesculentoside, caudatoside and ptaquiloside in surface water. *Environ. Sci.: Processes Impacts*, **24**, 277–289.

Valtorta, N. K. et al. (2018) 'Loneliness, social isolation and risk of cardiovascular disease in the English Longitudinal Study of Ageing', *European Journal of Preventive Cardiology*. SAGE Publications Inc., 25(13), pp. 1387–1396.

Webb, J.C., McCarroll, J., Chambers, F.M. & Thom, T. (2022) Evidence for the Little Ice Age in upland northwestern Europe: Multiproxy climate data from three blanket mires in northern England. *The Holocene*, **32**(5):451–467.

Williams, C. (2011) 'Public Attitudes and Preferences for Upland Landscapes: a short evidence review prepared for Defra's Agricultural Change and Environment Observatory'.

Woods, M., McDonald, R.A. & Harris, S. (2003). Predation of wildlife by domestic cats *Felis catus* in Great Britain. *Mammal Review* 33: 174–188.

Zhang, Z. (2017) 'Outdoor group activity, depression, and subjective well-being among retirees of China: The mediating role of meaning in life', *Journal of Health Psychology*. SAGE Publications Sage UK: London, England

The Role of Gamekeepers in the Northern Moorlands of England – Survey

The Regional Moorland Groups, alongside the National Gamekeepers’ Organisation, has commissioned Simon Denny to carry out a study that identifies the full range of tasks carried out by gamekeepers working in the northern moorlands of England, and calculates the impact and value of these activities. The study will cover the work of gamekeepers in the seven Regional Moorland Groups’ areas (Calderdale, Forest of Bowland, North Pennines, North Yorkshire Moors, Nidderdale, Peak District and Yorkshire Dales). This unique study’s report will be a valuable resource for the Moorland Association and the Regional Moorland Groups that will enable them to speak authoritatively to policy makers, the media etc. about the importance of gamekeepers in the northern moorlands, and the pressures they face.

The study will gather data in two ways:

- 1. A meeting with keepers to discuss the wide range and variety of tasks they carry out, and how much time they typically spend on these tasks over a year,
- 2. A survey for completion by keepers in the Regional Moorland Group areas.

A meeting was held in September, and the survey is being completed in meetings with keepers on 14th and 15th October 2024.

Anything that keepers say, or write, is treated in confidence and will be recorded anonymously. The report will not identify any gamekeeper by name, or location.

NOTES:

- 1. Please only complete one survey per moor.
- 2. Please note that some questions ask about a ‘typical’ year. It is well known that some years are more ‘typical’ than others! When answering questions with ‘typical’ year in them, please assume it is one when some driven shooting takes place.
- 3. Other questions ask about your experiences over either the last 12 months, or the last three years.
- 4. Most of the questions require a box to be ticked or crossed, a number inserted, or a yes/no answer. Some questions as for a small amount of writing.
- 5. Do not put your name, the names of your keeper colleagues, or the name of your moor on the survey.
- 6. If you have any questions or concerns about completing this survey, please speak with Simon Denny.

Which of the Regional Moorland Groups is your moor in?

Calderdale	
Forest of Bowland	
North Pennines	
North Yorkshire Moors	
Nidderdale	
Peak District	
Yorkshire Dales	

How long have the members of the keeper team been working on your current moor?

Team member	Years	Months
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		

How long have the members of the keeper team been working on grouse moors in total?

Team member	Years	Months
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		

How old are the members of the keeper team?

Age range	Number in age range
60+	
45 – 59	
30 – 44	
20 – 29	
19 or under	

How many members of the keeper team are provided with accommodation?

In a typical year, approximately how much does your moor spend with contractors and suppliers providing?

	£
Building interior services e.g. carpentry, plumbing, decorating	
Building exterior services e.g. roofing, repairing, decorating	
Vehicle and machinery purchases	
Vehicle and machinery hire	
Vehicle and machinery servicing	
Environmental services, e.g. track maintenance, peat restoration, grip blocking, vermin control	
Materials for moorland work, e.g. wire, tools, stone, paint, traps	
Security personnel	
Security equipment, e.g. cameras, barriers	
Wildlife monitoring equipment, e.g. cameras, drones	
Wildlife monitoring surveys by external personnel	
Gun and Rifle sales and servicing, including sights, etc.	
Ammunition	

How many of your contractors or suppliers are local, based within 20 miles of the moor?

How many of your local contractors are also farmers, or from farming families?

On a typical driven grouse day, how many people are involved in activities on the moor?

Keepers	
Guns	
Loaders	
Beaters (including Flankers)	
Pickers up	
Drivers	
Catering staff	
Security staff	
Others (please describe their roles)	

Approximately, how old are the people involved on a typical driven grouse day?

Age range	Number in age range
70+	
60 – 69	
45 – 59	
30 – 44	
20 – 29	
16 – 19	
15 and under	

Approximately, how far will beaters walk during a typical driven grouse day? (kilometres or miles, not both)

Miles	Kms

Approximately, how far do people involved on a typical driven grouse day travel to get to the moor (not including Guns)?

	Numbers of people travelling distances
Less than 20 miles	
21 – 70 miles	
71 – 150 miles	
151+ miles	

In a good year for grouse, how many shooting days will you have?

On a driven day, in a good year for grouse...

How many of the Guns pay to shoot?	
Approximately, how much does a Gun pay to shoot?	£
How many Guns will come from abroad?	

In a typical year, how many Guns...

Use local airports?	
Hire vehicles in the UK?	
Use taxis?	
Stay in local hotels/inns?	
Use local shops for clothing and shooting equipment?	
Bring their partners with them (whether they come out on the moor or not)?	

In a typical year, how many people who are not Guns but are involved on a shooting day will...

Have a meal in a local pub/restaurant?	
Stay in local hotels/inns?	
Use local shops?	
Use local garages?	

In a typical year, how many times has a member of the keeper team...

Attended a local/regional show to explain their role to members of the public?	
Attended a local school to explain their role?	
Helped at a local fete, village party etc.?	
Helped at a charity event or to raise money for charity?	

In a typical year, how many times will a member of the keeper team be involved in hosting a visit to the moor by...

School children?	
Members of the public?	
MPs, councillors, civil servants?	
Conservation organisations?	
Media representatives?	

Over the last three years, how many times has a member of the keeper team been interviewed by members of the...

Local press?	
National press?	
TV, Video?	
Radio?	

Typically, how many hours a week does the keeper team spend on social media explaining and/or defending what keepers do?

To the best of your knowledge, in a typical year approximately how many people visit the moor for the following legitimate leisure activities,

Walking or running?	
Cycling?	
Bird watching?	
Educational/research purposes?	
Other (please specify)	

Based on your knowledge, approximately how many of the people involved in a typical driven grouse day as beaters, flankers etc, are,

Living in poverty?	
Unemployed, but not living in poverty?	
Suffering from a mental illness?	
Suffering from a physical illness?	
Suffering from loneliness?	

How many times over the last three years have you been thanked by people involved in a driven grouse day as beaters, flankers etc, or their parents for helping to change attitudes and behaviours?

How many times over the last 12 months has a member of the keeper team had to help people (not those that are involved in shooting) that...

Were lost?	
Had lost a member of their party?	
Required first aid or medical assistance?	
Required rescuing?	
Had a broken-down vehicle?	
Had a stuck/bogged down vehicle?	
Had lost their dog?	
Other (please specify)	

How many times over the last 12 months has a member of the keeper team asked people to:

Put their dog(s) on a lead?	
Keep to footpaths and tracks when walking?	
Keep to footpaths and tracks when cycling?	
Stop illegal motorbike riding?	
Stop illegal four-wheel vehicle driving?	
Put out a camp fire or barbecue?	
Stop camping?	
Pick up their litter?	
Stop other anti-social behaviour (please specify)?	

How many times over the last 12 months has a member of the keeper team, or their family, been...

Threatened face-to-face?	
Threatened on social media?	
Insulted face-to-face?	
Insulted on social media?	
Assaulted without requiring medical treatment?	
Assaulted requiring medical treatment?	

How many times over the last 12 months has a member of the keeper team, or their family...

Suffered financial loss as a result of crime?	
Had mental health issues as a result of crime or intimidation?	

How many times over the last 12 months has a member of the keeper team, or their family, been negatively affected by...

Poaching of wild animals?	
Poaching of farm animals?	
Burglary of home?	
Burglary of work premises?	
Theft of personal vehicle?	
Theft of estate vehicle?	
Theft of machinery/plant?	
Theft of fuel?	
Livestock worrying?	
Damage to personal property?	
Damage to estate property?	
Criminal injury to dogs?	

How many times over the last 12 months has a member of the keeper team, or their family...

Reported an incident to the police?	
Called the police for support?	
Helped to recover stolen property?	
Had to clear litter?	
Had to clear fly tipping?	

How many times over the last three years has a member of the keeper team been involved in...

Fighting a wildfire on your moor?	
Fighting a wildfire on another grouse moor?	
Fighting a wildfire on a moor where grouse shooting does not take place?	
Training members of the Fire & Rescue Service in wildfire management?	
Attending meetings with the Fire & Rescue Service?	
Helping owners of moors where grouse shooting does not take place with wildfire management planning?	

Does any member of the keeper team attend meetings of a Fire Operations Group?

Yes	
No	

How many times over the last three years has a member of the keeper team been asked for assistance in fighting wildfires by:

The National Trust?	
The RSPB?	
A National Nature Reserve?	
Another conservation/wildlife organisation?	
A corporation e.g. a water or power company?	
Other organisation (please specify)?	

In a typical year, which methods of vegetation management are used on your moor, and approximately how many acres or hectares (whichever unit you normally use) are managed by each method?

Method	Used (yes/no)	Area managed	
		Acres	Hectares
Controlling burning			
Mowing			
Grazing			
Other (please specify)			

Over the last three years, how many acres or hectares (whichever unit you normally use) of your moor (including the margins) have been...

Reseeded (including heather plugs)?	
Rewetted?	
Had peat restoration work?	
Had bracken management work?	
Cleared of self-set trees?	
Planted with trees?	
Other improvement (please specify)?	

What methods do you use for bracken management?

Spraying	
Mowing without baling	
Mowing with baling	
Rolling	
Grazing	
Tree planting	
Other (please specify)	

What methods do you use to reduce tick numbers?

Grazing and dipping sheep	
Bracken management	
Other (please specify)	

How many members of the keeper team have had a tick-borne illness e.g. Lyme disease, in the last three years?

Apart from red grouse, which are the most commonly occurring species of bird on your moor?

1.		4.	
2.		5.	
3.		6.	

Over the last three years, how many of the following species of bird have successfully fledged young on your moor?

Bird species	Numbers successfully fledged	Bird species	Numbers successfully fledged
Curlew		Hen harrier	
Lapwing		Merlin	
Oystercatcher		Kestrel	
Redshank		Buzzard	
Golden plover		Peregrine	
Ringed plover		Whinchat	
Other waders (please specify)		Other raptors (please specify)	
Black grouse		Skylark	

Which of the following species of animal are routinely surveyed or monitored on your moor?

Mountain hare	
Wading birds	
Black grouse	
Butterflies	
Moths	
Raptors	
Gulls	
Corvids	
Fox	
Mustelid	
Invertebrates	
Ticks	
Other (please specify)	

In a typical year, which predators and vermin are controlled, without having to apply for a licence?

Species	Controlled?	
	Yes	No
Fox		
Carrion crow		
Mustelid (please specify species)		
Rat		
Other (please specify)		

Which predators have you controlled, having successfully applied for a licence?

1.
2.
3.
4.

Which diseases are routinely surveyed or monitored on your moor?

1.
2.
3.
4.
5.
6.

Is water quality routinely monitored on your moor?

Yes	
No	

Which wildlife/conservation monitoring or interest groups does the keeper team liaise with in a typical year?

1.
2.
3.
4.

What environmental outcomes have resulted from the keeper team working/liaising with local farmers and other landowners e.g. reduction in stock losses from predator control, more effective monitoring, bracken control, woodland management etc.?

1.
2.
3.
4.

Over the last three years, what has the keeper team on your moor achieved that you are especially proud of?

1.
2.
3.
4.
5.
6.
Others (please specify)

End of Survey

Thank you!

