

ECONOMIC AND ENVIRONMENTAL BENEFITS OF LOWLAND GAME SHOOTING IN THE UK

BASC
The British Association for Shooting & Conservation

Economic and environmental benefits of lowland game shooting in the UK

Bird species in this report are shown in bold and colour-coded according to their conservation status, as defined by Birds of Conservation Concern 4 (2015).

Under this scheme breeding and wintering birds are assessed against a set of objective criteria and placed on the green, amber or red list - indicating an increasing level of conservation concern.

CONTENTS

EXECUTIVE SUMMARY

- Responsible shooting, carried out in accordance with Codes of Practice, can have significant environmental and economic benefits across the lowland landscape.
- Landscape-scale management for lowland game shooting can be beneficial for a wide variety of native species including plants, butterflies and birds.
- Pest and predator control carried out in support of lowland game shooting helps to protect threatened farmland birds.
- Supplemental feed provided for lowland game can increase the breeding success of farmland songbirds.
- Lowland shooting supports a vibrant rural economy with far-reaching impacts throughout the supply chain.
- 70,000 workers are directly supported by lowland game shooting with additional significant benefits to the tourism industry.
- There is a rapidly-growing market for the game meat provided by lowland game shooting.

Recommendations

• **Policy makers, government, statutory agencies and conservation NGOs to recognise and support the important role landscape-scale management for lowland game shooting has on providing habitat and food for threatened farmland birds.** Shooters are conservationists and wardens of the countryside and shooting takes place over two thirds of the rural land in the UK. This provides important landscape-scale services such as habitat management, supplemental feeding and pest and predator control which shooters invariably provide for free to the benefit of the public as a whole.

• **Policy makers to recognise and support the importance of the voluntary work undertaken by shooters in hitting the UK's biodiversity targets.** Shooters carry out 3.9 million work days of habitat and wildlife management every year, and spend more than eight times more on conservation than the RSPB does across all of its reserves. Furthermore, shooters voluntarily provide the equivalent of 3,100 full-time jobs in pest control, essential for the UK's food security.

• **Policy makers to recognise and support the positive economic impact lowland shooting has in rural communities.** Lowland shoots have far-reaching economic knock-on effects throughout the rural economy — employing keepers, and support staff as well as supporting jobs in garages, accommodation and catering in the tourism off-season.

LOWLAND GAME SHOOTING IN THE UK

There are two principal quarry species for lowland game shooting in the UK; the **common pheasant** (*Phasianus colchicus*) and the **red-legged partridge** (*Alectoris rufa*). Traditionally the **grey partridge** (*Perdix perdix*) was the most important quarry species in the UK (Potts & Aebischer, 2008), but changes in farming practice and a national reduction in predator control led to an 80 per cent reduction in the population in the 40 years following the Second World War (Aebischer & Ewald, 2010). Shooters and farmers are at the forefront of **grey partridge** recovery efforts and research has shown how management for shooting can play an important role in the recovery of the population, as well as providing a shootable surplus (Aebischer & Ewald, 2004).

Lowland game shooting in the UK can take a number of forms. The game birds can either be wild birds (**pheasant** and **grey partridge**), which are protected through the breeding season to allow a huntable surplus to naturally develop. Or, they can be reared and released (**pheasant** and **red-legged partridge**, but also some **grey partridge**), with young birds allowed to acclimatise in pens before they disperse more widely before the start of the shooting seasons.

The open season for partridges starts on 1 September and for **pheasants** on 1 October. The season then closes on 1 February in Great Britain and 31 January in Northern Ireland.

Shoots organise themselves in a variety of ways, depending on the availability of game and the opportunities provided by the landscape and habitat. The aim of any game shoot is to provide 'sporting' game that are flying in a natural way and allowing safe shooting. Most game shooting can fit into one of the following broad categories, though they are indicative only:

Rough shooting / walked up shooting

A small team of shooters and dogs work the cover in hedgerows, fields and woodlands in an attempt to flush game for themselves to shoot. Supplementary feeding, pest and predator control and habitat management can occur.

DIY game shooting

A group of shooters share the responsibility for managing the habitat, providing supplementary feeding and controlling pests and predators. Shoot days tend to be more formal with shooters either taking it in turns to drive the birds towards a line of waiting Guns ('beat one, stand one'), or a small team of beaters can be employed each day to flush the game towards the Guns.

Formal driven shooting

On formal shoots there is usually at least one employed gamekeeper, and more usually a team of keepers, who are, among other duties, responsible for rearing any released game and feeding any wild or released game, controlling pest and predators and conducting habitat management. On shoot days birds are driven by teams of beaters towards waiting Guns.

In 2014, there were an estimated 120,000 driven game days and 100,000 walked up days, with an average of 13 and seven Guns respectively per day. This gave a total of 2.3 million gun days. The total bag over this period was an estimated 13 million **pheasant** and 4.4 million **red-legged partridges**, with 97 per cent destined for the human food chain (PACEC, 2014).

ENVIRONMENTAL BENEFITS OF GAMEBIRD RELEASE

Gamebird releasing conducted in line with the currently accepted Codes of Practice can have significant benefits to both the local environment and economy. These benefits are primarily due to sympathetic woodland and farmland management, predator control and supplementary feeding. Approximately 34.9 million of these birds are released each year, with roughly 80 per cent being **pheasant** and 20 per cent **red-legged partridge**.

Habitat management

Pheasants are primarily birds of woodland edges, and show a strong preference for shrubby cover (Robertson, Woodburn, & Hill, 1993; Robertson, Woodburn, Neutel, & Bealey, 1993). Therefore, a significant amount of habitat management is focused on managing woodlands, woodland margins and hedgerows, to maximise the quantity and quality of these features, with 41 per cent of shooting providers reporting they create or maintain hedgerows and 37 per cent reporting they create or maintain small woodland 'coverts' (PACEC, 2014). This can lead to shooting estates having up to ten times the woodland cover of non-shooting estates and for hedgerows to be better connected to woodlands (Oldfield, Smith, Harrop, & Leader-Williams, 2003).

Hedgerows are an important habitat feature that form natural boundaries, seedbanks and shelter as well as providing essential breeding habitat and transit routes for threatened farmland birds. Suitably managed hedgerows can incur a cost in terms of crop foregone (Hinsley & Bellamy, 2000). However, on land managed for shooting, the cost of the foregone crop is offset by the shooting income, which effectively subsidises the beneficial habitat management for non-target farmland birds. Furthermore, land managed for shooting is more likely to use traditional, labour-intensive, woodland management techniques, such as coppicing, which are beneficial to birds and other wildlife (Fuller & Green, 1998; Fuller, Stuttard, & Ray, 1989).

Shooting land managers also undertake other, large-scale habitat management to benefit gamebirds and other wildlife. For example, 33 per cent of shooting land managers report creating and maintaining grass strips around fields and 19 per cent report retaining over-winter stubbles (PACEC, 2014). Cereal stubbles are important as over-wintering habitat for farmland birds, providing habitat for up to 44 per cent of seed-eating birds (Perkins, Maggs, & Wilson, 2008). Sympathetically-managed grass margins can also provide important food throughout the year (for review, see Vickery, Feber, & Fuller, 2009) for many types of birds and small mammals. For example, they can supply up to three times the level of chick-food arthropods, essential for breeding birds (Douglas, Vickery, & Benton, 2009).

Often, habitat management for gamebirds can have significant benefits for other species. For example, a number of projects aimed at increasing the breeding population of **grey partridges** have shown significant increases in **lapwings**. In the case of the Peppering Partridge Project the number of **lapwing** more than doubled in the four years from 2007 to 2011. Often, this is because provision of features which are good for game, such as wet grassland and fallow land, are also advantageous for **lapwing** breeding success (Ausden & Hirons, 2002; Sheldon, 2002; Sheldon, Bolton, Gilling & Wilson, 2004), as well as pest and predator control.

Pest and predator control

Over half of those people that provide shooting opportunities (shoot providers) carry out wildlife management (such as deer management) and pest and predator control to protect game and habitats (PACEC, 2014). Predator control is a complicated area as it has been found to increase populations at the end of the breeding season, but not to affect the numbers surviving the winter (Côté & Sutherland, 1997). Predator control on its own is therefore beneficial for quarry populations, but of limited use to most other bird species (perhaps with the exception of ground-nesting birds and waders). However, when combined with habitat management, predator control has been found to locally reverse the declines seen in farmland bird species such as **song thrush**, **whitethroat**, **dunnock** and **blackbird** (Stoate & Szczur, 2001).

Corvids are one of the most important groups of avian nest predators (Andren, 1992; Anglestam, 1986), and management for shooting, which includes the removal of corvids, can lead to significant increases in passerine breeding success (Stoate & Szczur, 2001). Furthermore, **jays** can be responsible for up to 40 per cent of all nest predation in **blackcaps** (Weidinger, 2009). Research has found that the most effective control is where mammalian and avian predators are both removed (Bodey, McDonald, Sheldon, & Bearhop, 2011; Madden, Arroyo, & Amar, 2015; Parker, 1984), and data from *The Value of Shooting* shows that, on average, shoots report annual bags of 74 small mammalian predators per estate; suggesting that this is likely to be common practice.

For 30 years gamekeepers in the Brecks have been working with the RSPB and Natural England to help the **stone curlew** population recover. Much of this work has involved monitoring and control of nest predation by foxes, which are one of the main causes of poor breeding success (Bealey, Green, Robson, Taylor & Winspear, 1999). Gamekeepers have also provided **stone curlew** plots on farms and estate land which, combined with predator control, have seen the **stone curlew** population in the Brecks increase from a low of fewer than 100 pairs in 1980 to almost 250 pairs in 2012. Continued predator control and provision of nesting habitat is essential for the long-term recovery of this species.

Supplemental feeding

DIY shoots and formal shoots provide supplemental feed for gamebirds to encourage them to stay within the boundaries of the shoot, and to help improve winter survival and wild breeding success. This feeding can either be through direct provision of grain in hoppers, by hand feeding in forest rides, or through the planting of seed-rich plots of wild bird cover, also called cover crops.

UK shooting providers spend £5.4m on cover crop seeds every year and maintain over 25,000ha of wild-bird cover (PACEC, 2014). These areas are important food and holding points for **pheasants** and **partridges**. However, cover crops are also an important source of food for many farmland birds (Boatman, Stoate, & Watts, 2000; Sage, Parish, Woodburn, & Thompson, 2005) and can support up to 100 times more birds than set-aside or cereal stubbles (Parish & Sotherton, 2004), including threatened farmland birds such as the **tree sparrow**, **linnet**, **corn bunting**, **yellowhammer**, **dunnock** and **reed bunting**.

Food hoppers and feeding rides are used by shoots to encourage **pheasants** and **partridges** to use specific areas. UK shoot providers spend £25m per year on grain, which equates to over 200,000 tonnes of feed. Typically, only around a quarter of this food is eaten by gamebirds (Sánchez-García, Buner, & Aebischer, 2015) with songbirds consuming a significant proportion. This can increase overwinter survival for some species (Siriwardena, Calbrade, & Vickery, 2008), and is likely to improve breeding success (Stoate & Szczur, 2001). This could be especially important for species such as **yellowhammer**, **linnet** and **corn bunting** which are known to use hoppers (Brickle, 1997).

Addressing conflicts

A review of gamebird release by the RSPB (Bicknell et al., 2010) highlighted the range of impacts (both positive and negative) associated with gamebird releasing. The many benefits included positive habitat management for a wide variety of bird and animal species, as well as the economic and employment benefits to the local area. Of the negative impacts listed, many are simply management trade-offs, for example, managing for game increased the number of thrushes and generalists, but decreased the number of tits. The majority of the impacts, such as damage to vegetation and localised declines in butterflies, can be mitigated by following best practice releasing guidelines (summarised below).

The executive summary for Bicknell et al., (2010) reported that: “The data available show that at high densities of gamebird release, negative environmental impacts are likely to occur, and in some cases may be severe. In the majority of cases, however, where densities are moderate, it is likely that impacts are minor or may be offset by beneficial habitat management. In areas where good habitat management is combined with low release densities, or in areas that work to promote breeding populations of gamebirds, impacts may be largely positive.” In this context, ‘high density’ is likely to be in excess of 1,000 birds per hectare in the release pen. Current research from the GWCT supports this (Neumann, Holloway, Sage, & Hoodless, 2015; Sage, Ludolf, & Robertson, 2005) which is why it forms the basis of the maximum recommended release density in the *Code of Good Shooting Practice*[1] and the English Nature and Forestry Commission’s guidance on Woodland Conservation and Pheasants[2].

1. http://www.codeofgoodshootingpractice.org.uk/
2. http://www.gwct.org.uk/media/208626/woodland-conservation-and-pheasants.pdf

ECONOMIC BENEFITS OF GAMEBIRD RELEASE

Recent surveys of the economic impacts of shooting often don't differentiate between lowland game shooting and other types. However, *The Value of Shooting* (PACEC, 2014) showed that driven and walked-up game (which will be predominantly lowland game) accounted for 26.8 per cent of all shooting days in the UK. A proportion of this will include grouse shooting, but throughout this section it is assumed that lowland game shooting will still account for 20 per cent of shooting days, and hence economic impact. This is likely to underestimate the actual value as avian and mammalian pest control account for twice as many shooting days as game shooting, but are unlikely to provide similar direct and indirect economic benefits.

Employment

Lowland game shooting supports 70,000 paid workers, equivalent to 7,000 full-time jobs (PACEC, 2014). Approximately 56,000 of these jobs are seasonal for beaters and pickers-up who are generally paid £25-30 and £30-35 per day respectively and represent the fourth largest cost to shoots (Savills & GWCT, 2015). As well as beaters and pickers-up, on larger shoots there will also tend to be at least one employed gamekeeper. This is normally a full time position on an annual salary of approximately £20,000 with a range of additional benefits including a house, business vehicle, clothing and dog allowances. Typically, this employment is focused in deprived rural areas, often with limited sources of income. For example, game shooting on Exmoor was found to bring in £22 million in 2004, compared with a total tourism spend of £70 million. Similarly, on Exmoor alone, shooting is responsible for 1,600 jobs, despite being one of the most sparsely populated areas of England (PACEC, 2012).

Indirect effects

Aside from direct employment, shooting contributes indirectly to local economies through the use of local services and businesses. For example, lowland shoots spend approximately £14 million maintaining and running shoot vehicles, often at small, rural garages, and shoots and their guests spend £28 million on catering and accommodation (PACEC, 2014) in what is traditionally thought of as the off-season.

Profit-making shoots report an average income per day of just over £1,000. However, 37 per cent of shoots report making a loss of almost £1,500, meaning that on average, shoots only cover their costs (Savills & GWCT, 2015).

Game meat

There are approximately 3,000 tonnes of gamebird meat available to eat each year (BASC & CA, 2014) with 97 per cent destined for the human food chain (PACEC, 2014). The game meat market is expanding rapidly with sales up from £97 million in 2014 (Mintel, 2015b) to over £106 million in 2015 (Mintel, 2015a); this has led to it being identified by Mintel as one of the "50 fascinating markets you need to watch". There is significant room for growth of the game market, which currently accounts for just 2 per cent of poultry and game sales, but sales of game meat are forecast to reach £143 million by 2020 (Mintel, 2015a).

CONCLUSIONS

Lowland game bird shooting is a sport enjoyed by hundreds of thousands of participants. It benefits the UK economy through a range of processes, including direct employment and indirect supply chain effects such as food, accommodation and equipment sales. As well as the economic benefits, shooting also contributes to positive environmental management which supports essential habitats for farmland birds.

In order to support the economic and environmental benefits of lowland game shooting, a number of recommendations are proposed below.

Recommendations

• **Policy makers, government, statutory agencies and conservation NGOs to recognise and support the important role that landscape-scale management for lowland game shooting has on providing habitat and food for threatened farmland birds.** Shooters are conservationists and wardens of the countryside and shooting takes place over two thirds of the rural land in the UK. This provides important landscape-scale services such as habitat management, supplemental feeding and pest and predator control which shooters invariably provide for free to the benefit of the public as a whole.

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