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1. Pheasants

Pheasants are the most numerous gamebirds in the UK, and the most common quarry for shooting. The possible impact of pheasant release on the environment is an important issue, and as driven pheasant shoots are widespread, the potential effect on the countryside from pheasant management is greater than that of other gamebirds. The GWCT has carried out a wealth of research into how pheasant shoots can be managed to maximise the environmental benefits and minimise the potential harms. Adhering to codes of practice and best practice guidelines is critical to responsible shoot management.

Why are pheasants released for shooting?

Gamebird releasing increased in the 20th century, largely in response to declines in wild grey partridges as farming modernised. Game management began to include rearing and releasing to provide the quarry needed. Although the grey partridge responded well to the more traditional gamekeeping methods, they were not as well suited to rear and release as the pheasant. According to the GWCT's National Gamebag Census, more than three quarters of birds released for

shooting are pheasants while the remainder are mostly red-legged partridges. A small number of grey partridge are still released, either for conservation or for shooting. From the 1960s onwards, as rearing methods developed, the success of rear and release pheasant shoots grew. The vast majority of shoots now release birds, which are reared on game farms or rearing fields on the shoot itself. Completely wild bird shoots do exist but they are much rarer.



The Code of Good Shooting Practice states that shooting must not commence until the birds are mature and fully adapted to the wild – a minimum of one month from release. © David Mason

Where do released birds come from?

Pheasants and partridges are normally bought from a game farmer as eggs, day-old chicks or young birds, called poults. Pheasant poults are generally bought at 6-8 weeks old, and red-legged partridge at 11-13 weeks. The gamekeeper will either buy eggs and chicks and rear them on the shoot, or buy in poults ready to transfer to the release pen. Many eggs and chicks are purchased from Continental game farms, but in general most poults are bought from within the UK. Game farmers and gamekeepers must comply with the regulations relating to gamebird rearing and should abide by the Code of Practice for the Welfare of Gamebirds Reared for Sporting Purposes. All UK game farms that are members of the Game Farmers Association (GFA) abide by the code, guaranteeing high welfare standards, but not all suppliers are part of the GFA.

How is it done?

When the pheasant poults reach 6-8 weeks of age they are moved to a shoot and placed in large, usually open-topped, release pens sited in suitable woodland, normally between June and August. Over the next 3-6 weeks the birds gradually disperse to use surrounding woodland and specifically planted game crop areas during the day, returning to the area around the pen to roost in trees at night. There are usually three to four months between release of the birds to the woodland pen and the start of shooting. Released pheasants are therefore around 6 months old at the start of the season. The timing of the release is aimed at ensuring that birds are mature and fully adapted to their environment by the time shooting commences in late October or early November. The Code of Good Shooting Practice states that shooting must not commence until the birds are mature and fully adapted to the wild – a minimum of one month from release.

Why are release pens used?

Pheasant release pens are usually situated in woodland, sometimes on the woodland edge, and range in size. Larger ones may be up to 10 hectare (16 football pitches), while smallest ones may be as little as a tenth of a hectare (the size of a penalty area). They provide a secure environment where the young birds can acclimatise to their new habitat. In particular, they give the birds the opportunity to adapt to roosting in the lower branches of trees, thus avoiding the attention of ground predators, especially foxes.

Do they roam freely when they are released?

Yes. Once they leave their release pens, pheasants are not confined to a particular area, tending to spend time during the day in game crops planted specifically to hold, shelter and feed them, then returning to woodland at night to roost. Often they return to the pen where they were released.

Did you know?

14% of total UK woodland area is managed for pheasant shooting. This is 28% in England, and 4% in Scotland and Wales.



Follow the Code

Replenishing birds mid-season

“Birds must never be released to replenish or replace any birds already released and shot in that season”

Buying British

“Shoot managers should support UK game producers as the preferred source of stock for release”

Replenishing birds mid-season

The practise of releasing birds after the start of the season to make up the numbers (sometimes called ‘topping up’) is a breach of the Code of Good Shooting Practice. It states that “Birds must never be released to replenish or replace any birds already released and shot in that season.” The principal reason for this is that it does not allow them time to acclimatise to their surroundings, which is why the Code stipulates that shooting must not commence until one month from release. The ethos is that the birds should be adapted to their environment. Topping up may also lead to inappropriately high levels of shooting in one area, causing more disturbance to wildlife and potentially increasing the incidental shooting of wild gamebirds.

In addition to breaching the Code there are legal implications to topping up. It may put the shoot at risk of breaking the 2006 Animal Welfare Act. There are also restrictions on the time between medications being administered and livestock entering the food chain, which will infringe the Food Safety Act 1990.

Did you know?

GWCT calculations estimate that 43 million pheasants were released in 2012.





Shoots have a responsibility to care for remaining pheasants after the end of the season.
© GWCT

Pheasant release: environmental effects

What effect can the release of pheasants have on the local environment?

Positive effects are seen in the surrounding woodland and farmland as a result of management measures undertaken for the pheasants and which tend to benefit other wildlife as well. In general, any negative effects are seen around the release pen, feed sites and wherever birds congregate in large numbers, because of direct effect of the birds being present.

What are the positive effects?

Some of the measured positive effects include: 22-32% more song birds in woods managed for pheasants¹; many more song birds in cover crops planted for game²⁻⁴; twice as many butterflies and an increased number of flowering shrubs in woods managed for game^{5,6}. Woodland management for pheasants also benefits some small mammals, such as wood mice and bank voles⁷. The provision of supplementary feed has positive effects on many seed-eating birds (see chapter 4), some of which are UK BAP priority species⁸. A GWCT study found that songbirds made a quarter of all animal visits to gamebird feeders⁹.

What impact do these effects have?

As an example, the combined package of game management measures at the GWCT demonstration farm in Leicestershire increased the abundance and breeding density of several bird species, including blackbird, song thrush, dunnock, whitethroat, chaffinch and yellowhammer¹⁰. A further unpublished GWCT study looked at 34 farmland sites nearby, and found 30% more farmland birds on farms with shoots than on farms without¹¹.

Why are these positive effects seen?

Pheasants are birds of the woodland edge, and some evidence shows that new woodlands are more likely to be planted, and existing woodlands to be preserved and better managed in areas with pheasant shoots^{1,12}. Generally, as well as game management providing food and reducing predation pressure, woodland management practices that provide suitable habitat for pheasants also improve habitat for these other species.

What are these management practices?

Pheasant management includes: reducing the canopy density (skylighting, thinning, coppicing) to allow more light into the wood, maintaining and widening woodland rides, more diversity at woodland edges, creating or maintaining hedgerows, planting game cover crops, controlling predators and providing supplementary food^{11,12-16}.

See chapter 4 for more detail.

What negative effects can pheasant releasing have on the local environment?

The area within and immediately surrounding a release pen often has a different profile of plants compared to areas with no pens. There is more bare ground, reduced low-level vegetation structure, and certain woodland plants are less common^{13,17}.

The vegetation within hedgerows can be affected by pheasants using them as corridors, particularly near to large release pens¹⁸. Other places where birds congregate are likely to see similar effects. Once released, pheasants (and red-legged partridges, see chapter 2) do eat insects¹⁹ but do not necessarily affect insect populations. The range of beetle species found may be different in pheasant release pens compared to reference areas, with some species more numerous and some less¹⁴.

Pheasants

These effects are seen for two reasons. The first is that lots of pheasants in one area scratch the ground, and their droppings add nutrients to the soil, acting as fertiliser in an area which would otherwise have quite nutrient-poor soil. This changes the makeup of the soil, which then supports different plants, so the presence of the pheasants can affect the environment, even if they are not directly eating the plants or insects. The second is that management of the woodland or other habitat for the pheasants can change the environment. Commonly game managers will open up the canopy in and around a woodland release pen and plant more shrubs to provide low cover. This may lead to fewer shade tolerant woodland plants, increased grassland plants and/or encourage a different ground invertebrate community.



The recommended stocking density for pheasant pens is no more than 1,000 birds per hectare. © GWCT

Although released pheasants will eat insects, they do not need them as they are usually given a balanced diet with plentiful feed. Most insects also hibernate during the winter so they are only available for a short period around September when the releases are still at their most abundant²⁰. It is often suggested that woodland insects in general may still be negatively affected by large scale releases. In the most detailed study some small effects of releases on improved grassland alongside release woodlands were found, but there was very little impact on the woodland ground invertebrate community itself¹⁹. Another study found no obvious effect of large scale red-leg releases on nearby species rich grassland²¹. A 2015

study did find an impact on larger ground beetles inside release pens, with more grassland type beetles and fewer woodland ones. It is unclear what the mechanism for this was. Direct predation of beetles might be involved but it is perhaps more likely that a less shaded woodland floor and different ground vegetation in the pens was the main factor^{14,17}. A few woodland butterflies feed (as caterpillars) on only one woodland plant species, for example violets. Avoid enclosing key colonies of these plants inside release pens.

Are there negative effects on other bird species?

It has been suggested that released pheasants may be involved in disease transmission to wild birds or that predation of other birds may be higher on pheasant shoots without good predator control. These are important questions for which there is currently little evidence. We await the scientific studies to investigate them.

What are the main recommendations for pheasant release?

Best practice states that pens should be stocked below a density of 1,000 poults per hectare (400 per acre). This is 10 square metres of space per bird, and is based on research examining the effects on woodland ground flora and husbandry considerations. Sites for release pens should be chosen to minimise damage, avoiding areas such as slopes and water courses, areas of conservation value or ecologically sensitive areas¹⁶.

Where shoots exceed the recommended densities, they should be able to demonstrate that their particular circumstances and management regime (for example, limiting the period of time birds are in release pens) does not significantly damage woodland flora and fauna. Delaying the time of release can avoid some potential conflicts. For example, some reptile and butterfly colonies may be vulnerable in mid-to-late summer but less so if the gamebirds are released later. If in doubt take expert advice.

Release pens should occupy at most a third of the total woodland area on an estate. This means that most of the woodland benefits from the management but isn't damaged by the birds themselves. The 'total woodland area' used in this calculation could include scrub patches, substantial hedgerows with trees, shelter belts and new woodland plantings, but it should not include the central part of large woodland blocks where there is no game interest.

We recommend not moving release pens unless there are obvious conservation or welfare benefits to be gained. Birds released into woodland pens should be encouraged to leave the pen for at least part of the day once they are used to roosting in trees.

We recommend avoiding the release of more than 1,500 birds to funnel through one main hedgerow that links releasing and holding areas, particularly if that hedgerow contains a good ground flora and is home to valuable wildlife. For larger releases it is best to use several hedgerows or plant game cover crop 'lead-in' strips to widen linking habitats.

Shoots should generally avoid releasing birds into sensitive woodland habitat, in particular reptile breeding or hibernation sites, and patches that have unusual or important plant or insect species. In ancient semi-natural woodland we recommend no more than 700 birds per hectare in release pens.

**Follow
the Code**

Releasing on SSSIs

“Shoot managers should be aware of SSSIs and other designated areas on their ground and should liaise with the landowner and the relevant statutory authorities to ensure they avoid potentially damaging activities”

Size of the bag

“Guns should take account of the size of bags and frequency of shooting.”

How have stocking densities changed?

The GWCT published releasing guidelines following our concerns in 2005 that the average stocking density in release pens was 1,800 birds per ha, rather than the recommended 1,000¹⁷. It's our view that the trend in recent years has been towards lower stocking densities.

Overall, is pheasant release considered to be beneficial or detrimental to wildlife and the countryside?

On estates that operate good habitat management and release birds at sustainable densities, our evidence shows that there can be significant biodiversity benefits. There is certainly controversy around this, but a comprehensive RSPB review on this subject concludes: “the positive effects of habitat management are likely to result in a positive net conservation impact”²².

How much woodland is managed for pheasants?

14% of the total UK woodland area is managed for pheasant shooting. This is 28% in England, and 4% in Scotland and Wales²³.

How many pheasants are released for shooting?

It is difficult to know precise numbers, but GWCT calculations estimate that around 43 million pheasants were released in 2012.

Do shoots which release greater numbers of birds and offer bigger bags do more harm than smaller ones?

This question has been increasingly debated as the popularity of driven shooting has grown and bag limits have been called for in some quarters. But this is to approach the problem of bad practice from the wrong angle. The key thing to remember is that where conservation value is concerned, it is not quantity but quality that matters. A big shoot releasing a large number of birds may have the freedom and resources to invest in impressive conservation measures, whereas a small shoot which is not observing release guidelines or doing associated conservation work, may be doing more harm than good. However, a big shoot has greater potential to be damaging to the environment, so in this sense has a greater responsibility to avoid that.

Equally, a shoot which releases more birds over a large area may be more beneficial than a shoot releasing fewer birds in a limited space. Similarly, bag size is not a proxy for conservation benefit. For example, it may cause less disturbance to shoot two large days in a season than 10 small days. The key is that in all cases shoots conform to best practice releasing densities, deliver conservation benefits, secure a market for the game and that respect for the quarry and consideration of the public is maintained at all times. In chapter 4 we look in more detail at the various conservation measures associated with shooting.



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Pheasant numbers through the season

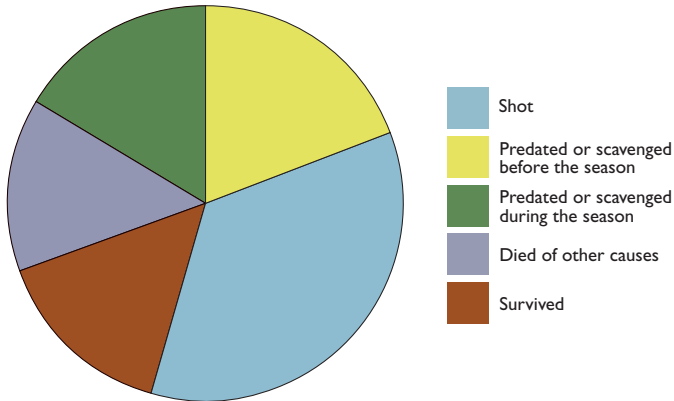
How many of the released pheasants are shot?

Estimates vary, but a recent GWCT analysis looking at 13 studies carried out over the past 20 years found that the return rate (number of pheasants released that are actually shot) was around 35%²⁵. This will vary enormously between shoots, but the UK figures are good compared with release methods used elsewhere in the world. For example, one study in France found that UK-style open-topped release pens gave a return of shot birds about one third higher than the usual French method of using small, closed-topped pens for around a week²⁶.

What happens to the other birds?

The GWCT analysis also found that 19% of released pheasants were predated or scavenged before the shooting season began, mostly by foxes. Predation/scavenging continued throughout the winter, accounting for approximately another 15%. Fourteen percent died of other causes, for example accidents, disease and so on, and 16% survived the shooting season²⁵.

Figure 1: The fate of released pheasants



Our analysis shows that 19% of released pheasants were predated or scavenged before the season, 35% shot, 15% predated or scavenged during the season, 14% died of other causes and 16% survived the season.

What happens to the surviving 16%?

Our analysis showed that almost half of the surviving hens were killed by predators between mid-March and mid-July. Ninety-five percent of these were killed by foxes. The proportion of surviving hens predated was heavily affected by the level of predator control performed – where predator control effort is low, 59% of surviving hens were predated, whereas where effort was high, 30% were predated²⁵.

One important point to bear in mind about this study is that the birds were followed by tagging to monitor their fate, with the tags attached to the birds at 10 weeks of age. This means that we do not know what had happened to any poults before that age. Raptor predation on gamebirds is thought to occur mainly between the ages of 7 and 10 weeks, so any effect is unlikely to have been captured in this study.

Does the number of birds on the ground decline throughout the season?

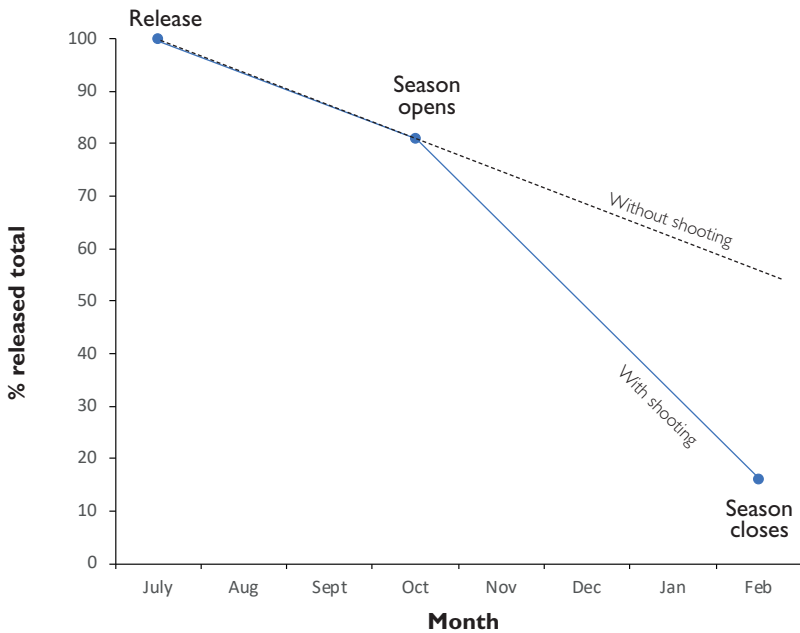
Yes. The graph on the facing page shows the loss of pheasants from release, through to the end of the season. There are five times fewer birds at the end of January than there were at the beginning of October when the shooting season began. Numbers fall as birds are shot

throughout the season, as well as being lost to other causes. Therefore, Guns should expect to shoot smaller bags in January.

How many birds would have been released for each bird that is left at the end of January?

If shooting has occurred throughout the season, 16% of the released birds survive the season, so for each bird alive on the 31st of January, six were released the previous summer.

Figure 2: Number of pheasants throughout the season



© GWCT

Did you know?

Pheasant origins

Experts believe that the common pheasant was present in Britain as early as the 11th century, and that pheasants are likely to have been introduced by the Normans, rather than by the Romans as is often perceived. They have certainly been an important quarry species since the 16th century.





The expectation should be that bags will be smaller in January. © GWCT

Why big January days are a modern problem

- The current trend towards big days at the end of the season is not how it was in the past. Previously, Guns expected to shoot fewer birds in January, including cocks-only days to leave the hens and encourage remaining pheasants to breed. January birds were traditionally more challenging as they were stronger and wilier. It was a case of quality over quantity.
- In order to have enough birds to shoot large bags in January, many more need to be released at the beginning of the season, increasing the number lost to predation during the season, and meaning that many more birds will be left when shooting ceases.
- This inevitably makes it more difficult for the shoot to ensure it is complying with the animal welfare requirements to look after birds once the season has finished.

Wild pheasants

There are several ways of defining a wild pheasant: some are truly wild, hatched from parents that also hatched from wild birds. However, the offspring of birds which were reared and released and survived the shooting season may also be considered wild.

Partly because of this, it is difficult to calculate the number of truly wild pheasants in the UK. Indeed, rather than a clear division between released and wild birds, it could be seen as a continuum. Some estates specialise in producing wild pheasants and local populations exist in East Anglia, Kent, central-southern England, Lincolnshire, Yorkshire and north-eastern England.

Why should shoots support their wild bird population?

- Shoots have a duty of care for released birds after the end of the season. It is irresponsible to leave pheasants that you have released in a situation where they cannot find adequate food to survive. Failure to look after birds after the season finishes is currently one of the biggest ethical issues in shooting.
- Because management for wild birds helps improve biodiversity.
- It can reduce the number that need to be released.

How can surviving birds be supported?

Supplementary food should still be provided normally until the end of May to support any released birds left on the ground. Numbers of pheasants gradually drop throughout the spring until more are released the following summer. However, where supplementary food is provided alongside suitable breeding habitat and protection from nest predators through legal predation control, released birds can produce young of their own. More detail on these management techniques is given in chapters 3 and 4.

How many birds could a truly wild bird shoot hope to support?

Realistically, an effective wild bird management programme might result in 100-150 surviving chicks per square kilometre (km²) of suitable wood or farmland habitat, in optimal circumstances.

What are the conservation benefits of wild pheasant management?

Habitat management, predator control and supplementary feeding in winter and spring have benefits for many other species and lead to increased biodiversity on wild bird shoots. The effect of management for wild pheasants at the Allerton Project in Leicestershire has been thoroughly studied, demonstrating that breeding songbirds were more abundant when game management was performed^{10,27}. Some species that are in national decline responded dramatically to game management – for example the song thrush increased 243% in six years of management. Brown hare have also been monitored during periods of wild gamebird management, and in three separate experiments the hare populations have increased, responding particularly to predator control²⁸. Also, areas managed for wild gamebirds do not receive some of the negative effects sometimes associated with releasing such as damage to woodland plants in release pens.

Follow the Code

Supplementary feeding

“Sufficient feed for released birds remaining after the end of the shooting season should be provided until adequate natural food is available normally to the end of May.”

Is the UK’s wild pheasant population growing, if it is added to each year by released birds?

It seems to be remaining stable, and the reasons behind this are a key area of ongoing research. Added to the effect of predation and other pressures which all wild birds face, breeding success in the UK released pheasant population is very low. Captive-bred birds who join the wild population do not breed well for various reasons^{29,30}. Some evidence suggests that reared pheasants are more vulnerable to predation than wild ones³¹, so predator control could be even more important. Captive bred birds are not usually as suited to survive and breed in the wild after the shooting season, physically or because of their behaviour. Current GWCT research aims to address this with updated rearing practices and shoot management.



Male pheasants hold territories in spring which attract a harem of females. © David Mason

Pheasant facts

Pheasants are between 53-89 cm in length, with males being the larger at over 66 cm. The tail is elongated in both sexes at 20-44 cm, but especially the male which is over 35 cm. Wing span is between 70 and 90 cm, again with the male being larger with wing span of more than 80 cm. Weight can vary, depending on local conditions, for example the provision of supplementary food, severity of winter etc. However, wild males usually weigh between 1-1.4 kg (Jan-Mar), and females around 0.9-1kg. Reared adult pheasants can weigh considerably more. The males have a loud, sharp disyllabic territorial crow call, which is similar but repeated as an alarm call³².

In the wild, pheasants are omnivorous, eating grains, seeds, berries and other fruits, roots, green shoots, small arthropods, insects and molluscs. They mainly feed on the ground by scratching with their feet and digging with their beak. Chicks hatch with enough yolk present in their stomach to eat little for the first two days, although they will eat if they find food, after which they begin to eat insects and other invertebrates. Green plants and shoots are added to the diet after ten days, followed by grains and seeds after six weeks³².

Male pheasants hold territories in spring which attract a harem of females. After mating, males are not involved in the breeding process. Hen pheasants lay clutches of 8-15 eggs from late March through to early June, nesting on the ground, usually in thick vegetation such as tall grass, scrub, hedge bottoms and arable crops. Incubation is for 23-25 days, from when the last egg is laid. Hatching is coordinated and all eggs hatch within around 12 hours of each other. The chicks are cared for by the female, but are self-feeding. They are able to fly from around 12 days, but remain with the female for at least two months³².

Their flight is mostly adapted to giving them rapid escape when danger threatens. What they need for this is rapid acceleration, and good manoeuvrability to dodge trouble. The pheasant's long tail can act as a rudder, able to help steer it quickly through woodland. When threatened, pheasants can produce a sudden burst of power for around 8 seconds to lift them off the ground and out of danger, followed by a glide. The flight and glide will carry a pheasant about 400m over flat ground. After the exertion of this flight, the birds need about an hour to process the lactic acid that was produced in their flight muscles and recover, before they are able to fly properly again. For this reason, it is considered unsporting to drive them again too soon.

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Did you know?

Chicks don't need to eat straight away

Pheasant or partridge eggs are usually laid one each day. Once the clutch is complete, the hen starts to incubate. The eggs that were laid first may have been in the nest for some time (up to 24 days in the case of red-legged partridge), but chick development begins when incubation starts, and the eggs all therefore hatch at a similar time.

When the chicks hatch, they do not need to eat for the first day or two because they have the remains of the egg yolk already in their stomach.

Ask the shoot

1. How many birds per hectare do you place in your release pens in the summer?
2. How much of the shoot's wooded area is fenced for release pens?
3. Do you have any SSSIs on the shoot?
4. How have you assessed the environmental impact of your release pens?
5. How far away is your poults supplier? Are they a member of the GFA?
6. How old are the birds I will be shooting, and when were they released?
7. Have any birds been replenished during the season on your shoot?
8. How many of last year's birds will I expect to see this season?
9. How often do you shoot the same drives?
10. Do you shoot fewer birds towards the end of the season?
11. How many shoot days do you have per week in January?
12. What is your average bag and what measures do you put in place to accommodate it?
13. How will you support the remaining birds at the end of this season?
14. What are you doing to support wild breeding pheasants?