

Conserving the grey partridge

A practical guide produced by
the Game & Wildlife Conservation Trust



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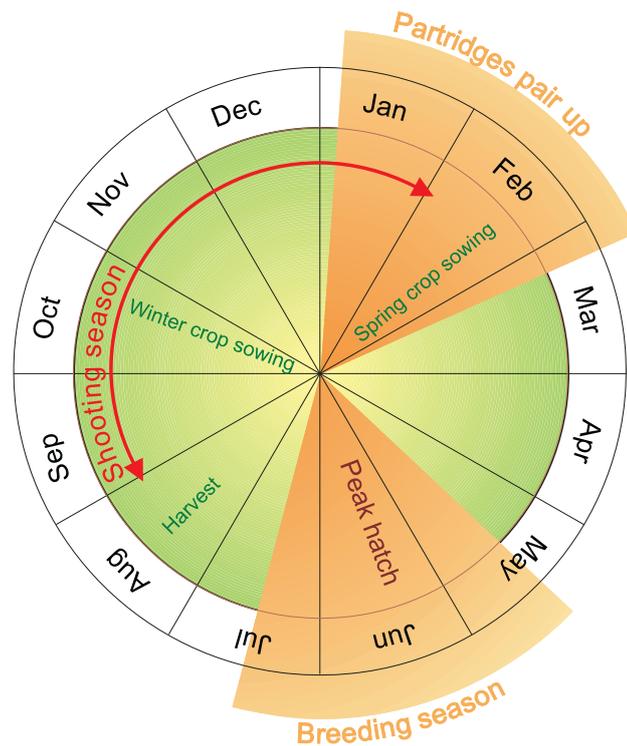
The decline of a common farmland bird



Cereal fields are the primary habitat for the grey partridge in Britain. Its future depends on farming. (David Mason)

The grey partridge originated as a grassland bird on the open, largely treeless, steppe. It nests on the ground, hidden in thick grass, and after the eggs hatch the hen partridge takes her brood of chicks to forage among the tall grasses or cereals for caterpillars, beetles, plant bugs and aphids. As they mature these chicks begin to feed, like their parents, on young shoots and seeds.

Its steppe origin has allowed the partridge to adapt easily to cereal farmland. Thick vegetation at the base of a hedgerow makes an ideal nest site, and wheat and barley crops provide perfect cover from predators while the young brood is searching for insects.



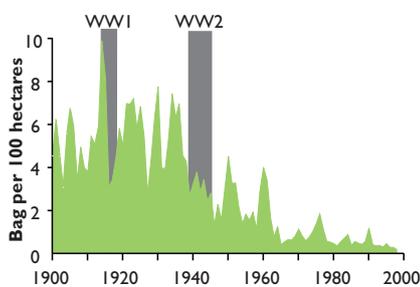
The life-cycle of the grey partridge. The main pairing and breeding seasons of the bird (orange) are shown in relation to the growth of cereals (green) and the shooting season (red).

A once flourishing gamebird

We can never know how many partridges existed in medieval England or earlier, but they were well distributed and in reasonable numbers. Farming was mixed and arable crops were full of insects and weeds. Nevertheless predatory birds and mammals were common and partridge losses to these must have been high¹.

In the 19th century, numbers of partridges dramatically increased following the period of land enclosure – with the patchwork-quilt landscape and quick-set hedges that we cherish today. After the agricultural revolution there was increased interest in managing game for sport and, by 1911, there were about 25,000 gamekeepers nationwide protecting gamebirds¹. At this time we estimate from bag data that there must have been more than a million pairs of grey partridges breeding in Britain¹.

In the 1950s a sharp decline in partridge numbers followed the introduction of herbicides into modern cereal-growing systems^{1,2,3}. This was exacerbated by a loss of hedgerows and the employment of fewer gamekeepers. In the early 1990s there were around 145,000 partridge pairs but on-going monitoring suggests that numbers have halved since then.



The decline in numbers of partridges shot highlights the dramatic drop during the 1950s and the very low numbers at present. (Data from 12 English sporting estates from the Game & Wildlife Conservation Trust's National Gamebag Census)

A safe place to nest - plenty of tussocky grass



A beetle bank is a raised ridge across the middle of an arable field and planted with tussock-forming grasses like cock's-foot. Designed primarily as habitat for ground beetles, which help control aphid numbers in the adjacent crop, they are also good gamebird nesting cover. (Peter Thompson)



Partridges are vulnerable during nesting time so, as well as relying on good nesting cover, their breeding success will be improved if numbers of carrion crows and magpies, which steal eggs, and foxes, which kill the sitting hen, are reduced. Properly used, the Larsen trap is a legal and effective way of dealing with crows and magpies in the spring and summer. (Stephen Tapper)

The Game & Wildlife Conservation Trust's Advisory Service can help design appropriate predation control strategies - see back page.

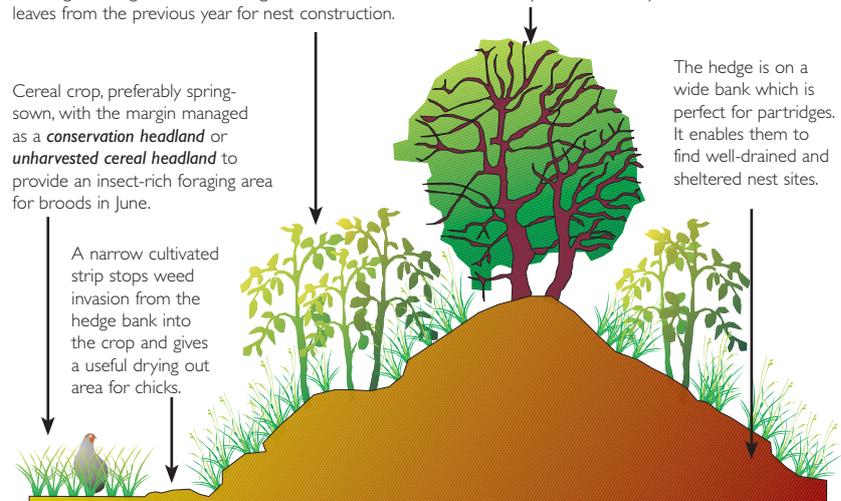
By the end of February most pairs have formed and, when the weather is dry, the pairs start prospecting for likely nest sites. They will pick their way around the bases of hedgerows assessing the ground vegetation and cover. Nest sites tend to be on free-draining soil on a slope preferably facing south and with shelter from the prevailing wet weather⁴. Nests are a shallow scrape concealed in dense vegetation such as rank tussocky grass, herbaceous perennials and the crops themselves⁴.

Good ground cover on the hedge bank is important for nesting partridges. It should be a mixture of perennial herbs and tall tussock-forming grasses such as cock's-foot. Trim down this vegetation to stop scrub invading. Partridges need the old grass stems and dead leaves from the previous year for nest construction.

The hedge, not strictly essential for partridge nesting, does provide a wind break and habitat for many other farmland birds. Don't trim too often, but allow the natural berry crop to be eaten by wildlife over the winter.

Cereal crop, preferably spring-sown, with the margin managed as a **conservation headland** or **unharvested cereal headland** to provide an insect-rich foraging area for broods in June.

A narrow cultivated strip stops weed invasion from the hedge bank into the crop and gives a useful drying out area for chicks.



The hedge is on a wide bank which is perfect for partridges. It enables them to find well-drained and sheltered nest sites.

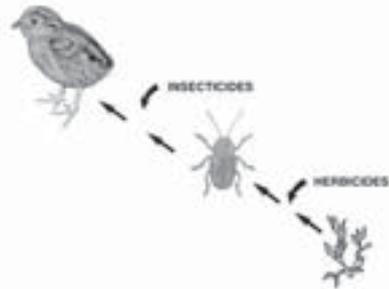
The profile of an ideal partridge nesting hedge - note the raised bank which provides sheltered well-drained nest sites hidden amongst dense ground cover.

DOS AND DON'TS FOR FARMERS

- ✓ Construct **beetle banks*** across large arable fields to increase the amount of nesting cover.
- ✓ Manage the grass beside hedgerows so that there is always old dead grass from the previous year available for nesting.
- ✓ Keep the hedge trimmed (preferably after the berry crop has finished) to under six foot in height to avoid them being used as look-out posts by avian predators.
- ✓ Make judicious use of **field corners*** to create grassy nesting cover next to cereal crops with **conservation headlands***, or **unharvested cereal headland***.
- ✗ Never spray out fence-rows with herbicides. Fence-rows are the only nesting habitats left in many areas.
- ✗ Don't allow livestock – especially sheep – to graze out and damage the base of hedges when adjacent fields are in grass. Some light grazing every few years may be beneficial.

* Grant aid is available for these under Stewardship schemes.

Chick survival - insect food is crucial



The chick food chain. Weeds in cereal crops are the food for caterpillars, beetles and bugs, which partridge chicks need for healthy growth. Herbicides and insecticides break this food chain.

Advisors of the Game & Wildlife Conservation Trust can give detailed agronomic guidance on managing conservation headlands. Telephone: 01425 651013.



Sawfly larvae - green caterpillars - are the ideal chick food and are most abundant in mid-June when partridges hatch. (Nicholas Aebischer)

During the first few days after hatching, partridge chicks need to feed on insects to grow and feather-up quickly. Without this protein-rich diet the chicks become stunted and die. Unfortunately insect numbers are much reduced in cereal crops because herbicides and insecticides have broken the natural food chain. Agricultural pesticides rarely poison the birds directly.

Since the early 1980s the Game & Wildlife Conservation Trust has developed techniques to help put the insects back into cereal crops and increase chick survival in ways that are compatible with modern agriculture^{5,6}.



A conservation headland. Annual weeds have been allowed to develop in the crop edge to provide the food base for the insect fauna on which partridge chicks depend. (Peter Thompson)

DOS AND DON'TS FOR FARMERS

- ✓ Use **conservation headlands*** along the edges of cereal crops. The key features are:
 - Herbicides and summer insecticides are not applied on cereal crops along a six- to 24-metre strip along the field margin.
 - Fungicides can be applied as normal.
 - Some selective autumn herbicides and grass weed-killers can be applied to combat cleavers, black grass and other noxious weeds.
- ✓ Place conservation headlands next to good nesting cover, for chicks to forage in.
- ✓ Leave some bare soil between the hedge bank and the crops. It prevents weed infestation of the crop and provides a drying-out/dusting area for partridge broods.
- ✗ Don't apply summer insecticides to cereals unless there is no other choice. The deleterious effects of a large-scale application can last for several years. If treatment is necessary, use a selective product such as *pirimicarb*, or leave the outer 12 metres unsprayed.

* Grant aid is available for these under some Stewardship schemes.

Surviving winter and spring - food and cover



This strip of kale mixture, in its first season, has been planted under the Stewardship schemes. It makes ideal cover for partridges in winter. (Peter Thompson)

Modern farmland is a hungry place for birds. The combine harvester leaves little spilt grain for seed-eaters and early cultivation for winter crops means that the rest of the grain, along with any weed seeds, is quickly buried. Further, many farms are now specialised arable enterprises and partridge coveys have lost the opportunity to share food provided for livestock wintering outdoors. Nevertheless, the young shoots of winter corn are themselves a source of food.

Much modern farmland is not only hungry, it is bare too. Partridges need some cover, not only as shelter from the worst of the winter rain and gales, but also to hide from predators.



A partridge pair in a field of winter corn. Provided with food and cover partridges can withstand the cold - they survive very well, for example, on the Russian steppe and Canadian prairies where temperatures are extreme. The characteristic cross-barring on the scapular feathers of the hen can be seen on the bird in the foreground. (Chris Knights)



A partridge feeder filled with wheat is used to supply food during the winter and spring (until the end of May). The hopper is placed inside a wire mesh surround to prevent badgers and deer from accessing the grain and also to help prevent sparrowhawk attacks. The feeder should be sited on open ground well away from woods and trees, but close to good nesting and protective cover.

DOS AND DON'TS FOR FARMERS

- ✓ Plant seed-bearing game crops* such as kale or quinoa and cereal in open areas where partridges are likely to be and not close to woodland.
- ✓ Leave stubbles as long as possible before ploughing*. Stubbles following an undersown crop are particularly valuable because they remain uncultivated through the spring within the ley.
- ✓ Put out bird feeders designed for partridges in places where there is nesting cover and overhead cover to hide from predators. Supplementary feeding is now funded under the Stewardship scheme*.
- ✓ Use the Stewardship schemes* to provide food with a kale-quinoa mixture left for two years. In winter and spring this provides food and protection from predators.

✗ Don't spray stubbles indiscriminately, but consider selective herbicides that will knock out noxious weeds while leaving the others as partridge food.

✗ Avoid planting new woodland in open areas suitable for grey partridges.

* Grant aid is available for these under Stewardship schemes.

Conservation targets - Partridge Count Scheme



“EVERY ONE COUNTS”

JOIN THE PARTRIDGE COUNT SCHEME

As part of its role in UK grey partridge conservation, the Game & Wildlife Conservation Trust (GWCT) runs the Partridge Count Scheme as a means of offering management advice and feedback to farmers, landowners, and shoot managers on the basis of their spring and autumn counts. These counts are essential to monitor recovery and judge the success of habitat improvement.

For further information and to join this free scheme, please visit www.gwct.org.uk/partridge or contact The Partridge Count Co-ordinator on 01425 652381.



Counting grey partridges in late summer to assess breeding success. (Stephen Tapper)



Partridge habitat in Britain. The yellow is optimum habitat for grey partridges with a high proportion of arable farmland. Green is less optimal ground where livestock rearing out-weighs arable farming in importance. Grey areas are unsuited to grey partridges for a variety of reasons. (From CEH Land Cover and OS Geographic Reference maps)

The grey partridge was in the first group of species to be given priority under the Government's 1995 Biodiversity Action Plan (BAP). The plan aimed to stabilise grey partridge numbers by 2005 and ensure that the breeding population was above 90,000 pairs by 2010. Sadly, despite changes in agricultural subsidies and improved agri-environment schemes, it is now clear that nationally, the species continues to decline. Nevertheless, there are many local successes and numbers of grey partridge pairs on sites belonging to the GWCT Partridge Count Scheme (see box left) have increased by 81% between 2000 and 2010.

Our analysis (see map above) suggests that if partridges were distributed at even modest densities across the existing farmland, there is adequate land available for over 200,000 pairs if all necessary habitats were present.

Within the Partridge Count Scheme, regular meetings of the 15 regional grey partridge groups help to explain face-to-face how to manage land effectively for grey partridges. Factsheets on habitat creation, management and predation control are also available for download from www.gwct.org.uk/gpdownloads. Measures taken to improve grey partridges will improve the numbers of other species of farmland bird.

Grey partridges and shooting



Shoot grey partridges only when you know that there are over 20 birds per 250 acres in the autumn. Stop as soon as this threshold is reached. (Andy Hook)



Redleg partridges like these have become popular to rear for shooting. Provided precautions are taken to avoid shooting wild grey partridges on driven redleg days, redlegs will do no harm to the native species. (David Mason)

The grey partridge is no longer the prolific gamebird it once was. In most districts it is now either absent or uncommon. In these circumstances partridges should not be shot. The only exception is where careful management has produced a shootable surplus. Some properties still produce these surpluses in good breeding years and, provided not more than 30% of the autumn population is shot, the harvest is sustainable.

Unless carefully managed, the shooting of released red-legged partridges can have a devastating effect on wild greys at a low density because of the risk of over-shooting. Precautions must be taken to avoid this.

SIX GOLDEN RULES FOR GAME SHOOTERS

- 1 Do not shoot wild grey partridges if you have fewer than 20 birds per 250 acres (100 hectares) in the autumn. Below this level the population has little ability to compensate for shooting losses.
- 2 Stop shooting wild grey partridges as soon as the threshold of 20 birds per 250 acres (100 hectares) is reached, for the same reason.
- 3 Avoid shooting grey partridges after the end of December. Birds pair up in the new year and shooting at this time reduces the breeding stock.
- 4 Never shoot at grey partridges that are in pairs.
- 5 With driven redleg or pheasant shooting, take special precautions to ensure that wild greys are not shot at the same time.
 - Warn the guns if grey partridges are likely to be on the drive.
 - Tell the guns to watch out for higher birds in tight coveys that might be greys. Tell them, if in doubt, not to shoot. Perhaps fine them if they shoot greys!
 - Arrange a system of whistles for beaters to warn guns that greys have been flushed - their distinctive call also helps to identify them. Have observers in the line of guns to do the same.
- 6 **DO NOT SHOOT GREY PARTRIDGES AT ALL UNLESS YOU ALSO TAKE STEPS TO CONSERVE THEM.**

Partridge management for shooting

Knowing the number of partridges on the ground is the minimum requirement for shooting.

The autumn count is carried out immediately after harvest by driving across stubbles in the early morning or late evening and recording the size of all coveys encountered. Refinements are to age and sex the birds, and to count the pairs in spring.

Unmanaged land should hold on average 4.5 breeding pairs on 250 acres (100 hectares). With annual losses of 55%, this implies that 20 birds per 250 acres are required in the autumn just to maintain numbers. At lower densities shooting should not take place.

Restocking with grey partridges reared on a game farm almost always fails as a means of restoring stocks. Most, if not all, are killed by predators within a few weeks of release. Essential components of conserving wild partridge stocks are habitat management and legal predation control. We have produced separate guidelines for restocking grey partridges to establish a wild breeding population once again⁸.

Common questions; References

This initiative is supported by the Farmland Bird Species Action Plan Steering Group which includes, as well as the Game & Wildlife Conservation Trust:



British Trust for Ornithology
Countryside Council for Wales
Defra
Natural England
Joint Nature Conservation Committee
Northern Ireland Executive
Royal Society for the Protection of Birds
Scottish Executive
Scottish Natural Heritage
Syngenta



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01425 651013.**

FOUR COMMON QUESTIONS:

- Q: If partridges are scarce why not protect them?** A: It is a fact that partridges are most abundant in the places where they are conserved for shooting. This is not because shooters go to where they are most common, but because on these places partridges are managed carefully so that they breed and survive better than elsewhere, giving more partridges because of, not despite, shooting.
- Q: Sparrowhawks seem to be killing small birds of all kinds - are they to blame?** A: Certainly where partridges are scarce and sparrowhawks are in good numbers, predation by birds of prey could be a limiting factor and this is the subject of current research. However, under the pre-1960s traditional farming methods, both birds were common. Partridges declined most severely in the 1960s and 1970s, when sparrowhawks themselves were almost wiped out by organo-chlorine pesticides.
- Q: Surely what we want is more gamekeepers keeping foxes and crows in check?** A: Foxes and crows undoubtedly suppress partridge numbers and we have proved that effective predation control by a gamekeeper can easily treble partridge numbers in a few years⁷. So, having more gamekeepers reducing foxes and crows will help. However, with adequate nesting and winter cover, as well as sympathetic farming systems which improve chick survival, a partridge stock should maintain itself, albeit at a low density, even in the presence of predators.
- Q: Why can't we solve the problem by releasing game farm birds?** A: For two reasons. First, the partridge has declined primarily because arable land has become inhospitable through agricultural intensification, so restoring the habitat should always be the priority. Second, hand-reared partridges do not behave naturally in the wild and are very vulnerable to predators. Even those that do survive usually fail to breed in subsequent years⁸.

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- 1 **Potts, GR** (1986). *The Partridge. Pesticides, Predation and Conservation*. Collins, London. 274 pages.
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- 5 **Rands, MRW** (1985). Pesticide use on cereals and the survival of grey partridge chicks: A field experiment. *Journal of Applied Ecology*, 22, 49-54.
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- 7 **Tapper, SC, Potts, GR, Brockless, M** (1996). The effects of an experimental reduction in predation pressure on the breeding success and population density of grey partridges (*Perdix perdix*). *Journal of Applied Ecology*, 33, 965-78.
- 8 **Buner, F, Aebischer NJ** (2008). *Guidelines for re-establishing grey partridges through releasing*. Game & Wildlife Conservation Trust, Fordingbridge.