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Nesting cover: for safe nest sites

What nesting cover do gamebirds need?

Ideal partridge nesting sites are in thick grassy cover, often at the base of a field boundary or on low banks - slightly raised above the general field level. The site needs to be dry, sheltered and well concealed, with plenty of "residual" grass – dead grass from the previous year that helps with camouflage[39]. Pheasants will also nest in these sites, but in general prefer to breed along woodland edges with plenty of shrubby cover, particularly brambles[85]. Nesting attempts made later in the season tend to be in crops.

How do shoots provide this?

Hedgerow management

The UK hedgerow stock degraded in the second half of 20th century as farming policies encouraged their removal to optimise efficient mechanised farming methods. Many were retained during that period because of game interests. Hedgerows are very important for partridge nesting, in fact many studies have found that up to 75% of grey partridge nest in hedge bottoms when available[39]. However, the type of hedgerow is also important – for example, they should retain

enough dead grass from the year before at the base to provide cover for a female grey partridge or wild pheasant sitting on a nest[61]. The modern approach of frequent hedgerow cutting reduces the amount of dead grass available, and we recommend that hedgerows should be cut every other year, rather than annually, preferably in late winter so that the berries produced by the hedge plants can be eaten by birds.

A good scheme for the farm as a whole is to cut one half or one third of hedges each year, ensuring that these are scattered across the farm rather than all in one area. This ensures that there are hedges at the right stage to suit the full range of wildlife needs spread across the whole area. Cutting every other year allows not only more berries, but also more flowers to develop on hedgerows. If cutting were to move to every three years, rather than every two, the quantity of berries would increase even further, meaning more winter food for wildlife[86,87].

Valuable hedgerows should also be protected from crop sprays, livestock browsing and cultivation. In order to support the broadest range of wildlife, the hedge should be made up of (mainly native) shrubs and trees including hawthorn, blackthorn and field maple. There is a requirement in the UK to maintain an uncultivated verge alongside a hedge without which it will support a less beneficial mix of plants on the ground. We also suggest that the margins alongside are not mown, unless scrub invasion is a problem. If the hedge base is dominated by nettle and other weedy species, they can be sprayed out and a cocksfoot-based mix can be sown to give good nesting cover for the future.

Traditionally, new hedges would have been allowed to grow fairly tall in most areas of the country, and then laid. This gives a tight hedge, which can then be allowed to grow. It is also a good way to restore hedges which have become spindly, but cutting and laying is labour intensive and therefore expensive. Another alternative, which is quicker and requires less skill, is to coppice. By cutting the plants off just above the ground, you encourage a group of stems in place of each one. Laying the cut tops as a dead hedge gives some short-term cover, and protects the re-growth from browsing by deer.

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Did you know?

Hedgerows support 1,500 different invertebrate species from 70 families, hawthorn alone has 209 species associated with it.

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Benefits to other species

It has been estimated that a third of all Britain's plant species have been found in hedgerows[88], and a well-managed hedge is a wildlife haven year-round providing food and shelter in summer and winter. In general birds prefer hedges that most resemble their non-hedge breeding habitat[87]. So woodland species like blackbird, chaffinch and song thrush like tall bushy hedges with a few trees. Scrub species like linnet or yellowhammer prefer lower, wider and denser hedges. Open country species like grey partridge, whitethroat and corn-bunting will nest alongside hedges with good verges especially where low shrub or rank vegetation is locally scarce.

The hedge and the associated hedge base are one of the most important habitats on farmland for invertebrates. They provide overwintering habitat for beetles and spiders, whilst the plants themselves and the nectar, pollen and seed they produce are food for many different beneficial groups of insects including pollinators such as bumblebees, bird chick-food and the natural enemies of crop pests. In total hedgerows support over 1,500 different invertebrate species from 70 families[36]; hawthorn alone has 209 species associated with it[89].

Butterflies such as small tortoiseshell, peacock, red admiral, meadow and hedge brown, gatekeeper, orange tip, ringlet and several whites are commonly found alongside farmland hedgerows[90]. Occasionally other butterflies such as skippers and blues will take advantage on windy days of the shelter provided by hedgerows in otherwise open landscapes. Less common butterflies such the brown hairstreak or the brimstone will breed in hedgerows if they contain their blackthorn or buckthorn food plants.

Farmland hedges provide habitat for many mammal species including harvest mice, which use hedgerow verges to nest and dormice, which live in hedges with spring thorn flowers and late season fruiting tree and shrub species. Dormice also use hedges to travel from wood to wood. Predators such as shrews and bats commonly feed on insects along hedgerows. Greater and lesser horseshoe bats, for example, prefer taller hedges and will feed or glean directly from foliage.

Beetle banks

Beetle banks, invented by the GWCT, are raised strips across the middle of large arable fields, sown with a mix of tussocky grasses, and disconnected from the field edges to allow normal agricultural operations as well as discourage mammalian predators from hunting along them. This habitat provides ideal nesting cover for grey partridge, as well as overwintering sites for beneficial insects which can help control crop pests[91]. They are easy to establish and maintain, and cost little in terms of income foregone. Because beetle banks increase the number of beneficial insects in the field nearby, these can reduce the number of pests, for example aphids, in the crop[92]. Chemical treatments to the crops may be required less often because of the higher number of beneficial insects colonising from the beetle bank.

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Benefits to other species

Beetle banks can be a haven for many species. Designed with partridge nesting in mind, they also provide overwintering sites for beneficial insects, which are found in higher numbers on fields with beetle banks. The possibility that they may allow fewer applications of pesticides can be a benefit for the wider environment and the farmer, as well as for the beetles themselves. Thousands of beneficial insects per square metre can be found on a beetle bank[91]. They also provide ideal nest sites for small mammals, for example harvest mice, which are found there in high numbers[71].

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Shrubs or hedges planted along woodland edges on shoots provide shelter for pheasants and woodland birds. © GWCT

Woodland edge

An ideally designed woodland edge for wild pheasants to nest in provides shelter from the wind at ground level. This involves removing the lower branches and some trees to increase light in to the ground, allowing ground vegetation to grow. The provision of medium height trees and shrubs along the edge of the wood, and sometimes a suitable hedge further out should deflect wind up and over the wood itself[93].

Other areas can be used, and maintained in such a way that they are suitable for nesting. For example, ditches can be thought of as inverted hedge banks, and in some areas can offer valuable nest sites when left unmown.

Traditional crop rotations

Traditionally, the crop sown in a given field would change annually to achieve a balance between crops that deplete nutrients from the soil and those that allow it to recover. A good example of this is the inclusion of "grass leys" in the crop rotation, typically found on a mixed arable and livestock farm.

In this management, a mixture of grass and clover would have been sown at the same time as a cereal crop such as spring barley, and the two crops grow together with the grass and clover establishing itself under the taller barley. This is known as "undersowing", and allows a harvest during the first year of pasture establishment. After the development of herbicides, farmers still practising a grass ley rotation use a more limited range of herbicides during this year so that the clover can thrive; this allows other arable plants to grow and is good for biodiversity. When the barley is harvested, the ground is not ploughed and the grass crop has a head start - the field will be used for grazing or a crop of hay, typically for three years before bringing the field back into arable crop production. The absence of ploughing during this time is particularly beneficial to sawfly larvae, which overwinter in the ground as pupae and then emerge the following spring without being destroyed by agricultural operations.

Because clover is able to gather nitrogen from the air and "fix" it in root nodules, the breakdown of clover roots enhances the amounts of both nitrogen and organic matter in the soil. Therefore, clover acts as a natural fertiliser and contributes to soil health. Soil quality is enhanced after a grass ley period and the farmer plants a valuable crop such as winter wheat in the year following the rotational ley in the expectation of a high yield.

Rotational leys are one of the elements of traditional farming that historically sustained high numbers of farmland birds such as grey partridge and corn bunting, along with other wildlife species.

Benefits to hares of game management

The National Gamebag Census shows that the number of hares killed on contributing estates fell during the wars. NGC records indicate that hare bags in Edwardian times were about twice as big as in the early 1990s, and this is believed to reflect a genuine decline which largely happened in the 1970s. The decline was largely caused by the abandonment of traditional mixed farming in favour of modern methods. Hares like a patchwork quilt farmland similar to that required by grey partridge, which is why they often thrive on wild partridge projects.

These days they are a minor quarry species with voluntary moratoriums on shooting imposed where numbers are low. Hares have shown some recovery in recent decades partly thanks to shoots improving cover and grazing conditions and carrying out fox control. On livestock farms, cover is usually the limiting factor so game cover crops and strips of long grass are beneficial. On arable farms grazing is often poor in summer when the crops have lengthened. Shoots which provide more grass in the form of strips or patches of pasture can help here.

High numbers of foxes will limit hare numbers so predation control in the spring breeding period can be key to maintaining a sustainable hare population.

A Code of Practice for Brown Hare Management in England can be found at: **www.gwct.org.uk/managementfactsheets** and for advice on hare conservation, please visit **www.gwct.org.uk/haremanagement**.

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