

Ancient and species-rich hedgerows



Diverse countryside - Rhulen © Roger Key

Introduction

Hedgerows are important invertebrate habitats in their own right, often providing the most significant wildlife habitat over large stretches of lowland UK. Over 1500 insects have been recorded at some time living or feeding in hedgerows.

Ancient hedgerows, which tend to be those which support the greatest diversity of plants and animals, are generally defined as those which were in existence before the Enclosure Acts, passed mainly between 1720 and 1840 in Britain. Species-rich hedgerows may be taken as those which contain 5 or more native woody species on average in a 30 metre length, or 4 or more in northern England and upland Wales. Hedges which contain fewer woody species but a rich basal flora of herbaceous plants are also included here, as are recently planted species-rich hedges. Where boundary lines of trees or shrubs are associated with features such as banks, ditches, trees or verges, these features are considered to form part of the hedgerow.

Since 1945 there has been a drastic loss of hedgerows through removal and neglect throughout the UK, especially in eastern counties of England, which continues even now. It has been estimated that some 42% of the remaining British hedges, or about 154,000 km, are ancient and/or species-rich. Such hedges are concentrated in southern England, especially in the south-west, and in southern Wales. Hedgerows adjacent to roads, green lanes, tracks and wooded ground tend to be particularly species-rich.

Threats

Neglect

No cutting or laying, leading to hedgerows changing into lines of trees and the development of gaps. This reflects modern high labour costs and loss of traditional skills.

Poor cutting

Too frequent and badly timed cutting leading to poor habitat conditions, the development of gaps and probable species changes.

Loss of trees

Loss of hedgerow trees through old age and felling, without encouraging replacements.

Ploughing

Ploughing over-close to hedges, virtually eliminating the herbaceous fringe. Deep ploughing too close to hedgerow trees can damage roots, leading to death - a problem for instance with ancient oaks in hedgerows.

Spraying

Use of herbicides, pesticides and fertilisers right up to the bases of hedgerows leading to nutrient enrichment and a decline in species diversity.

Over-stocking

Increased stocking rates, particularly of sheep, leading to hedgerow damage and the need to fence fields. The presence of fences reduces the agricultural necessity for hedge maintenance and so hastens their decline. The modern practice of "ranching" (placing netting around several fields to form a grazing block) also contributes to the deterioration of internal hedges.

Removal

Removal for agricultural and development purposes.

Habitat management

Over-management of hedgerows is one of the biggest problems facing species that live in this habitat type. The practice of annual cutting using a mechanical flail creates a uniform and species-poor hedgerow that is of little value to wildlife. Mechanical flailing also makes the option of leaving selected saplings to become hedgerow trees much more difficult. Attention should be given to creating a well-structured hedge with a variety of habitat niches for a wide range of invertebrate species.

Maintain structural diversity

Broad, tall hedges with a diverse range of species and heights are the best for supporting most invertebrates. Maintaining herb-rich hedge bottoms and wide margins will also increase the habitat niches available. Continuing hedgerow loss and neglect and an over-tidy approach to hedgerow management could be harmful to populations, though current hedgerow legislation gives some increased protection. Use of agri-environment schemes such as the Entry Level Stewardship (ELS) or Organic Entry Level Stewardship (OELS) to promote the conservation of hedgerows plus adjacent habitats should be beneficial.

Adopt rotational management

Whilst cutting is discouraged during the bird nesting season, which corresponds with a peak period for many insects, there is no 'safe' window for cutting.



Common scorpion fly (*Panorpa communis*) © Jaybee www.phocus-on.co.uk

Suites of different species of insects characterise spring, summer and autumn, whilst many over-winter as eggs or cocoons on twigs. Equally, the associated ground flora is vulnerable, with the need for full stature in the flowering and seed phases; some invertebrates spend the winter in old stems and seed-heads.

Only a proportion of the total hedgerow in any given area should be cut in a single year, to ensure that over-wintering species are not completely eliminated. This could involve cutting only one side of a hedge to allow invertebrates to recolonise, or managing different sections of a hedge in different years. Rotating the cutting over several years will ensure that invertebrate breeding and feeding places will always be present and that plants, such as white bryony or ivy, are allowed to flower each year. It will also ensure that some shaded areas are retained.

On larger sites, variation between hedges on the site may be more practical to achieve than managing sections of a single hedge and may have the same effect.

Cutting

Hedges should not be cut annually unless there is an access issue, such as with those alongside roads and footpaths. Cutting every three or more years will allow hedge plants to produce flowers and berries and achieve a better structure. Annual flailing has had a severe impact on many species of butterfly and moth. Hedgerow caterpillars, such as those of the nationally scarce Small eggar moth (*Eriogaster lanestris*), have undergone a major decline due to over-zealous hedge trimming. Species such as the Lackey moth (*Malacosoma neustria*) and Brown hairstreak butterfly (*Thecla betulae*), which overwinter as eggs on shoots and twigs, are also very vulnerable to annual flailing. Repeated flail cutting at the same height will eventually produce a mass of scar tissue and dead branch ends which support few healthy shoots. If the flail cut is taken back to the main upright trunk of hedges, the bark can be torn off. Flails should therefore not be used on larger branches and woody material, to reduce the amount of splintering of cut branches. For heavy hedges, a circular saw is preferable, as the branches are cut with a clean finish, lessening die-back and fungal infection.

Timing

Hedges should be cut after most of the berries have gone; cutting when the hedge is in foliage or flower or still bears a large number of berries will remove invertebrate food sources. Late winter is the best time, but attention must be given to the fact that many insects have stages that over-winter in hedgerows, both on the twigs and on the herbage. The Scarce vapourer moth (*Orgyia recens*) is almost exclusively found in hedgerows; its over-wintering larvae are often destroyed by flailing.

Laying

Hedge structure is best improved through traditional hedge laying techniques but this should, if possible, be carried out on a rotational basis so that the entire length of the hedge is not laid at any one time. Although hedge-laying is more time-consuming, it does have the advantage of prolonging the life of the hedge and encouraging the growth of new shoots. Laying needs to be repeated every 15 years or so, during which time flail cutting can be used to check growth.

Maintain species diversity

Shrubs such as blackthorn, hawthorn, sallows, wild privet, field maple, crab apple and common buckthorn should be allowed to grow large enough to flower as they are an important source of nectar and pollen for many insects.



Caterpillar of Lackey moth (*Malacosoma neustria*) © Roger Key

Other species such as oak and elm support many invertebrates including a number of nationally scarce leaf-hoppers. Since the loss of many elm trees to Dutch Elm disease, elm suckers are now particularly important for the White-letter hairstreak butterfly (*Strymonidia w-album*). It is also very important to maintain climbing plants in hedgerows. White bryony is host to tephritid picture-winged fly larvae in its berries, while bramble is very important for flower-visiting insects; its cut stems are also a major nesting site for various small solitary bees. Ivy is good for beetles which live in the dead wood of old stems, but its autumn flowers are especially important for providing food for late season insects by day and night. Native roses are mainly of value for moths and sawflies.

Maintain diversity at hedge bottoms

Thick hedges with tussocks and accumulations of leaf litter are likely to be preferred by invertebrates such as ground beetles. Hedges should be maintained so that they are still permeable to invertebrates, allowing them to exploit habitats on both sides of the hedge with ease. Many invertebrates are associated with the herbaceous plants which characteristically occur at the bases of hedges. Umbellifers such as cow parsley, hogweed, wild parsnip and hedge parsley attract large numbers of insects. Nettles are the foodplants of butterflies such as the Small tortoiseshell and Peacock and the Orange-tip butterfly breeds on hedge garlic. Other useful hedge-bottom plants are black horehound, which is the host plant for many beetles and bugs, and toadflax, host to the scarce Toadflax leaf-beetle (*Chrysolina sanguinolenta*).

Wide margins should therefore be retained in order to allow such plants to flourish. Under cross-compliance regulations introduced in 2005, all hedges must have a buffer margin extending at least 2 metres from the centre of the hedge, but in thicker hedges this is likely to be insufficient protection and wider margins should be adopted.

Retain standard trees

Standard trees should be retained and their density increased to at least 30% of the length of the hedge through selection of trees or saplings at the laying stage. Maintaining continuity is also important. New hedgerow trees can be established by selecting straight saplings within a hedge and avoiding them when hedge trimming. Tagging the saplings before the start of hedge cutting will facilitate this. Trees at the corners of a field or next to a wide road verge will suffer less disturbance than those in hedges between fields.

Elm and its re-growth suckers should be kept, as the White-letter hairstreak butterfly and other special insects can breed on elm suckers. Sallow, sloe and other early flowering species that form nectar and pollen sources should be retained and allowed to flower.

Retain dead wood

Old trees and dead wood should be retained as far as public safety allows, as these provide very valuable habitats for a large number of invertebrate species. Ash and oaks should be retained, as should dead elm suckers. Dead wood on shrubby species such as hawthorn and blackthorn also supports interesting invertebrate species. The adults of the rare fly *Paraclusia tigrina* have been found on isolated old trees in hedgerows, which have patches of bare dead wood, therefore such trees should be retained.

Maintain headlands and margins



Stag beetle (*Lucanus cervus*) © David Wareham

Cross compliance for the Single Farm Payment now requires all hedges to have a buffer zone of 2m from the centre of the hedge, but for maximum effectiveness when hedgerows adjoin arable land, these should be at least 5m wide and preferably greater. Headlands of grassland cut on a rotational basis would be beneficial in most situations since they provide dispersal corridors and hibernation sites for some species. The creation of conservation headlands and conservation field margins ought to benefit the invertebrate fauna of hedges substantially, and hedges are often most valuable where they are associated with large tracts of semi-natural habitats such as unimproved grassland, scrub and woodland and features such as ponds. Ditches associated with hedges may also support significant fauna.

Hedgerow verges should be left as undisturbed as possible.

Maintain ditches

Significant drainage ditches close to hedges are likely to be considered as a habitat in their own right but many ancient hedges are closely associated with small ditches that dry up over summer, have little in the way of vegetation, and are often choked with leaves from the hedge. These support a number of characteristic species; in larger ditches a wider range of species typical of weedy eutrophic waters can occur with the caddisflies *Limnephilus lunatus* and *L. marmoratus* being particularly common.

If the ditch does dry out during summer it is important to appreciate that it must be treated in the same way for management and clearing out as other ditches, as the young larvae of species such as the caddisfly *Micropterna lateralis* spend the summer in the damp bottom; other species pass the summer as adults away from the water-body but return to lay eggs in, or near, the damp ditch at the end of summer before the ditch re-wets.

Maintain hedge banks

Solitary bees nest in dry sunny banks, as do bumblebees, and these in turn rely on shrub and herbaceous flowers to provide nectar and pollen.

Avoid spraying

Application of herbicides adjacent to hedgerows should be avoided as should herbicide drift from neighbouring fields. This can be done by turning off the outer half of the spray boom when spraying next to a hedgerow or not starting the flow of the chemical into the spray boom at the field edge – the initial rush of the spray can carry further than necessary. It is best to spray in conditions when the wind is light to avoid spray drift.

Retain birds' nests

Old birds' nests, especially of song thrush and other such songbirds, are the surprising location of larvae of the crane fly *Tipula peliostigma*. Leaving old birds' nests in hedgerows will benefit this and other invertebrate species.

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