Plantlife

The good verge guide

A different approach to managing our waysides and verges

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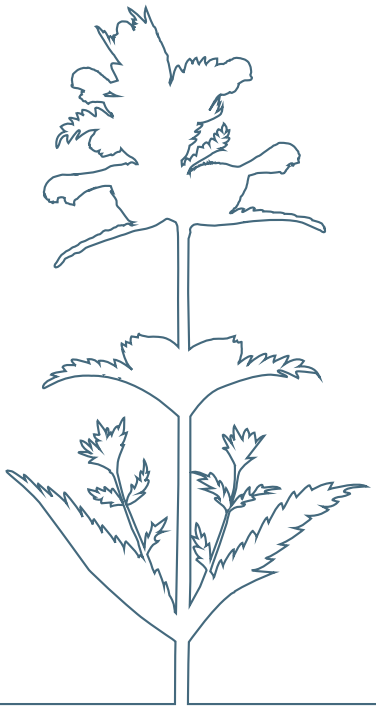


Foreword

"Throughout the spring and summer the wild flowers of our country roads and lanes delight all who walk or drive them – or rather one would think that they delight everyone, but this is clearly not entirely so because each year, at the height of their glory, mile upon mile of them are ruthlessly cut."

John Burton, Country Life, 1973.

Taking a different approach

Plantlife's vision for Britain's road verges is one where all verges are managed for wildlife as a matter of course, restoring and expanding flower-rich habitats along our road network. This will ensure the survival and natural spread of both common and rare species, for their own sake, for the sake of the wildlife they support and environmental benefits they bring, and to enhance the contact with nature experienced by users of Britain's road network.

We know that verges are under considerable pressure. Priorities for safety and access, along with budget constraints and difficulties with the collection of litter and grass clippings all mean that enhancing their wildlife value is often low on the list. But we believe that the adoption of a few basic principles can significantly improve the biodiversity on our verges, bringing benefits for wildlife, for us and for future generations.

The value of verges

There are nearly half a million kilometres of rural road verge in the UK.
This is equal to half of our remaining flower-rich grasslands and meadows.

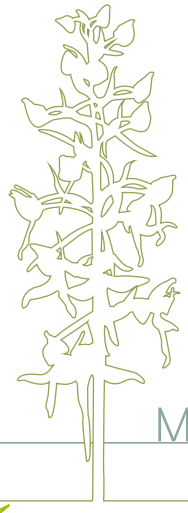
For the **23 million** people commuting to work by road every day, road verges can be their only daily contact with nature. The procession of colour through the year – cowslips, bluebells, cow parsley, oxeye daisies, orchids, scabious, foxgloves and knapweed keep us in touch with the changing seasons and provide us with a sense of place: pyramidal orchids on the southern chalk downs, wood crane's-bill in the Yorkshire Dales and melancholy thistle in Scotland.

With over **97%** of ancient wild flower meadows destroyed since the 1930s, road verges are a vital refuge for many bees, butterflies, birds, bats and bugs – a good verge will supply a diverse source of nectar and pollen from the first celandines in February to the last Devil's-bit scabious in September. Bird's-foot trefoil alone is a food plant for over 130 species of invertebrate.

Over **16,700** people have signed up to Plantlife's call for road verges to be managed better for nature.

Over **700 species** of wild flowers grow on our verges, nearly 45% of our total flora, and are home to many familiar wild flowers that are now becoming threatened, such as harebell, field scabious and ragged-Robin.

But **87** of these are threatened with extinction or heading that way, including the largest British populations of rarities such as Deptford pink, tower mustard and spiked rampion.



Man orchid Purple milk-vetch Crested cow-wheat
Deptford pink Sulphur clover Field gentian
Wood bitter-vetch Spignel Spreading bellflower
Velvet lady's-mantle Lesser calamint Meadow clary

The diversity of road verges...

Our rich and varied verges

There are two main types of road verge in the UK:

Enclosed verges are separated from neighbouring land by a fence, hedge or wall. These verges require specific management – usually cutting – in order to maintain their wildlife interest. They are the most common type of verge in the lowlands, but also occur in upland areas.

Unenclosed verges are not separated from neighbouring farmland by any boundary and their management generally comes from grazing livestock that wander onto the verge. They occur in lowland areas where roads pass through heathland, moorland and across common land, but are most frequent in upland and mountainous areas.

Our verges are as diverse as the countryside they pass through:

Lowland grassy verges are the most widespread and are found throughout the UK. A good example will be home to meadow flowers such as cowslips, oxeye daisy, scabious, clovers, vetches, knapweed and meadow crane's-bill. Flowery and exuberant, they can support magnificent displays of orchids, especially the various spotted and marsh orchid species, but also pyramidal and early purple orchids. Thanks to the infertile soil the sward is thin and short, with delicate grasses like sweet vernal grass, quaking grass and crested dog's-tail allowing plenty of room for other flowers to grow. On the best verges that are cut later in the year, yellow rattle also helps to keep the grass down.

Upland grassy verges, found in Wales, northern England and Scotland, are often wetter and more acidic than their lowland counterparts, sometimes resembling rare upland hay meadows. Devil's-bit scabious is characteristic, along with wood crane's-bill, bistort and melancholy thistle, and these verges can support large populations of heath spotted orchid and northern marsh orchid. Such verges tend to grow more slowly and are usually cut late in the year, although unenclosed verges are often grazed by livestock from surrounding hills and moorland.

Damp verges and ditches can be found at all altitudes and provide a different type of floral display. In the lowlands the vegetation can grow quite tall and lush – almost like a fen in character - with ragged-Robin, meadowsweet and purple loosestrife interspersed between rushes and reeds. In the ditches themselves, deeper-water plants can thrive, such as yellow iris and hemlock water-dropwort. On poorer soils in western areas damp verges can be home to rush-pasture (rhôs pasture), characterised by rushes, whorled caraway, lesser spearwort and sneezewort. By contrast, the wettest verges in the uplands and the far north-west of Scotland can even resemble bogs, with mounds of sphagnum moss home to insectivorous sundews and butterworts along with bog asphodel and cottongrass.

Heathy verges are found on dry, poor soils in lowland areas of England and Wales where roads pass though areas of heathland, or more widely in upland areas of the UK; they're especially common in Scotland where roads often pass through areas of unenclosed moorland. Such verges can provide colourful displays of heather (ling) and bell heather, along with gorse and bilberry (blaeberry), and flowers including tormentil, heath bedstraw and sheep's-bit scabious. Since their growth is quite slow, these verges are not cut annually; they're usually unenclosed and are often grazed by livestock from surrounding land.

Wooded verges can be simply magical in spring, with flamboyant displays of woodland flowers along shaded leafy lanes under a canopy of leaves. Primroses, bluebells, celandines, wood anemone, ramsons, greater stitchwort and violets all herald the arrival of spring, along with early purple orchid nestled amongst the ferns. Later, foxgloves and red campion continue the show, and in a few places in the west rarer bastard balm and spreading bellflower can be found. Grasses tend to grow thinly in the shade, so if cutting is needed it's usually done in June and July when the spring flowers have set their seed.

The diversity of our verge flora is staggering. Over 700 species of wild flower are known to grow on verges somewhere in the UK, that's 45% of our entire flora. This vast palette allows some remarkable pictures to be painted, with plants coming together in a myriad of combinations that lend local character and identity to our verges:

Sunken lanes in Devon with bluebells, bastard balm, wood anemones and ferns

Dry, grassy verges in eastern Scotland with maiden pink, hoary cinquefoil, knotted clover and meadow saxifrage

Chalk downland verges on Salisbury plain with pyramidal orchids, thyme and squinancywort

Upland verges in mid Wales with wood bitter-vetch, butterfly orchids and heath bedstraw

Clay-rich verges in East Anglia with sulphur clover, crested cow-wheat and dyer's greenweed

Limestone verges in the Yorkshire Dales with bistort, wood crane's-bill and lady's mantles

Damp heathland verges in western Scotland with butterworts, cottongrass and sphagnum mosses

Road verge winners and losers

The last few decades have seen huge changes in our road verge flora. These have been driven mainly by changes in the way we cut and manage verge habitats and the increasing fertility of roadside soils. Some species have done well, thriving and spreading, while others have suffered, disappearing from view.

One noticeable trend is that, with the move to earlier and earlier cutting in spring, **we're erasing summer from our verges**. Only plants that flower early have a chance to set seed before the mowers arrive. As a result, some spring flowers are thriving and spreading, but summer-flowering plants – many of which typify our beautiful meadows – are disappearing. This isn't just bad news for flowers, it is bad news for the bees, beetles, butterflies and birds that rely on plants for food.

In addition, vigorous perennial plants and some invasive introductions are better at surviving the tough roadside conditions we've created, so these are increasing at the expense of more delicate species.

Here are a few road verge winners and losers.

Winners...

Cuckooflower (*Cardamine pratensis*), **cowslip** (*Primula veris*), **garlic mustard** (*Alliaria petiolata*) and **celandine** (*Ficaria vesca*).

All these early spring-flowering species put on fantastic displays on many verges. They set their seed quickly – within just a few weeks – and are therefore able to spread before the first cut. While bluebell (*Hyacinthoides non-scripta*) does well on some verges, its seeds take longer to ripen and rarely have a chance to be spread before the mowers arrive.

Cow parsley *(Anthriscus sylvestris).*

Although loved by many, especially when roads are garlanded with delicate white lace in May, this can be an invasive native perennial when nitrogen levels are high. It has undergone an explosion in abundance on our verges, where it relishes the increasingly fertile soils. It reproduces vigorously by vegetative spread and doesn't need to set seed to survive, so it can spread in the face of early mowing, out-competing many other roadside flowers.

Three-cornered garlic *(Allium triquetrum).*

This highly invasive non-native bulb produces white flowers in spring and was introduced into Britain from the Mediterranean, first escaping from gardens in 1849. It's spreading rapidly along road verges and is now found from Land's End to Orkney, being especially abundant in south-west England, south-east England and around the Welsh coast. Like other invasive arrivals such as **montbretia** (*C. x crocosmiiflora*) and **hybrid bluebell** (*Hyacinthoides x massartiana*), it forms dense colonies that can out-compete our native flora.

Losers...

Yellow rattle (*Rhinanthus minor*) and **eyebrights** (*Euphrasia* spp).

These summer-flowering annuals are classic meadow species, but they need to set seed every year in order to survive. Early spring cutting has all but eradicated them from verges, which is ironic as they could be the saviours of our verge flowers and help control the growth of grass (see 'Yellow rattle' on page 16).

Man orchid (*Aceras anthropophorum*), **greater butterfly-orchid** (*Platanthera chlorantha*), **green-winged orchid** (*Orchis morio*) and **frog orchid** (*Coeloglosswum viride*).

While these orchids flower in early summer, like most of the 25 orchid species on our roadsides their seed pods take weeks to fully ripen. Early cutting destroys them and the hundreds of thousands of seeds they contain. As a result these orchids are now rare on verges, except those that are properly managed.

White campion (*Silene latifolia*).

Once common and widespread on our verges, this summer-flowering perennial is short-lived and relies on new plants regularly growing from seed. Like many other summer-flowering meadow perennials, such as **field scabious** (*Knautia arvensis*), **betony** (*Betonica officinalis*) and **knapweed** (*Centaurea nigra*), it's becoming rarer on verges, with consequences for pollinating insects.

White campion (*Silene latifolia*)
Illustration by Andrew Evans

Verges past and future

In the 1980s, a chalk verge in Hampshire supported all sorts of wonderful downland flowers like wild marjoram, pyramidal orchid, greater knapweed, wild basil, blue fleabane and salad burnet. Returning to the same spot today is dispiriting. Most of these species have gone – just tough old greater knapweed remains – and the verges are now dominated by robust grasses, cow parsley and hogweed.

Q: What happened?

A: We changed the way we manage verges...

Originally, trackways and byways were used to move livestock between fields and farms, whilst ancient droveways took livestock longer distances to market. Along with the horses that were used to pull carriages and carts, these animals grazed the verges as they passed. This kept the grass under control and encouraged the growth of wild flowers.

Particularly wide verges were treated like meadows, scythed in summer to provide a crop of hay; such verges can still be seen in some rural areas and are still used by traveller communities to tether and graze their animals as they have done so for generations.

Gradually though, with the rise of the petrol engine and decline in livestock using the tracks, these routes were tarmacked. Without grazing animals to keep the vegetation in check, roads were allocated a 'linesman' whose job it was to keep the verges cut, dig out drainage ditches and trim hedges in a particular area. However, in the 1950s, this labour-intensive practice declined, along with the traditional skills that went with it. The task of roadside maintenance was gradually passed on to landowners, local councils and authorities who (apart from a thankfully brief interest in the use of growth-suppressing chemicals in the 1970s) turned increasingly to mechanisation to do the job.

Today, mowers are almost always used to cut our verges. Cheap and easy to operate, they can be used repeatedly to cut verges throughout the year at low cost. Deprived of the opportunity to set seed, flowers have disappeared as a result. The mowings left behind are hard to remove, so it's left and builds up a thick, suppressing thatch that rots down and enriches the soil.

There is also an unseen threat to our roadside flora. Vehicle exhausts are one of the main sources of nitrous oxides (NOx), atmospheric pollutants that also affect our own health. Evidence now shows that these nitrogen-rich compounds are fertilising our countryside, with many declines in flowerings, mosses and liverworts being attributed to this 'fertiliser rain'. Delicate species of low-fertility soils, such as harebell and small scabious, are being shouldered aside by larger, more nutrient-demanding species like cock's-foot grass and creeping thistle.

It's a perfect storm. With nitrogen from vehicle exhausts landing directly on verges, fertilising the soil, and mowers preventing flowers from setting seed, our roadside flora has changed beyond all recognition in a lifetime.

Road verge nature reserves

Valiant efforts have been made to protect some of the best remaining stretches of flower-rich verge. Locally, some councils and conservation groups – notably The Wildlife Trusts – have identified many Road Verge Nature Reserves (RVNRs) to ensure good management. These can be spectacularly successful – reserves set up in Powys, Kent, Lincolnshire, Norfolk and Oxfordshire are still in superb condition after many years and protect and enhance much of the diversity they aimed to protect, despite increased nitrogen deposition. In Norfolk, a RVNR has even been identified as the counties' flagship **Coronation Meadow** thanks to its thriving population of sulphur clover and dyer's greenweed.

However, relatively few councils or local authorities run such schemes and, when funding becomes limited or commitment wanes through changing personnel, management of RVNRs can lapse and diversity can quickly be lost. This type of approach also places our attention on very small stretches of verge, **sometimes as little as 0.07% of the total road network in a county**. With these sections under increased protection, it can foster a feeling that the rest of the verge network can be abandoned. However, we need to be much more ambitious than this. It's only through improved management of the wider road verge network that substantial conservation gains can be made, especially in terms of habitat connectivity and genuine benefits for plants, for the wildlife they support and for people.

Plantlife's road verge management guidelines

What ...we want to achieve

The primary aim of our Road Verge Campaign is to bring good management to as much of the rural road network as possible. We want to:

Maximise flowering plant diversity on our verges, recognising that nearly 45% of our native flora grows on road verges.

Maximise subsequent benefits for invertebrates and other wildlife through provision of food plant resources, including nectar and pollen.

Produce practical guidelines that can be easily undertaken by landowners, councils and local authorities on as many verges as possible.

Keep roads safe for motorists, recognising that verges along sight-lines and around junctions are a priority and need to be cut regularly.

These guidelines are based on a review of grassland, meadow and verge management, especially long-term studies that investigate the effects of cutting dates on vegetation[1,2]. These show two interesting things:

Firstly, early cutting dates reduce floral diversity over time. Deprived of an opportunity to seed, early cutting encourages the vigorous growth of robust, long-lived species that are more likely to spread vegetatively.

Secondly, late cutting dates also reduce floral diversity over time. If cutting is delayed too late in the season, this encourages the build-up of a thick 'thatch' of dead and dying vegetation forming a mat over the soil. Again, this encourages the growth of more vigorous species that don't rely on open soil for seed to germinate, as many of our wild flowers do. **Even worse is no cutting at all**; if grasslands and verges are left uncut even for just one year their composition begins to change and species begin to decline. Basically[3], grassy verges are very sensitive to changes in management and there appears to be a narrow window of opportunity each year – from mid-July until the end of September – when cutting helps to maximise species diversity.

1 Humbert, J-Y, Pellet J, Buri, P & Arlettaz R (2012). Does delaying the first mowing date benefit biodiversity in meadowland? Environmental Evidence 1:9.

2 Parr TW, Way JM (1988). Management of roadside vegetation: the long-term effects of cutting. J Appl Ecol, 25:1073–1087.

3 Csergő, AM, Demeter, L., Turkington, R. (2013). Declining Diversity in Abandoned Grasslands of the Carpathian Mountains: Do Dominant Species Matter? PLoS One http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3754964/

Plantlife's road verge management guidelines

Why

Our principle aim, therefore, is to delay the first cutting date of lowland grassy verges from early spring until late summer. The first cut should be undertaken in a period between mid-July and the end of September, when seeds have been shed. The exact date depends on local conditions, as determined by latitude and altitude. Typically it will be around mid-July in southern England and south Wales, August in the English midlands and lowland mid-north Wales, and September in upland England, Wales and most of Scotland.

Developing this sort of management guidance is never straightforward. As well as the challenge of producing general guidance for such a diverse collection of habitats, the realities of day-to-day road verge management that local authorities must deal with have to be taken into account. There are, for example, priorities for driver safety and pedestrian access, the realities of severe budget constraints, the practical difficulties associated with the collection of grass clippings and litter and negotiating programmes of work with contractors. Guidelines therefore have to be as straightforward and practical as possible; if they're complicated and difficult to undertake they'll almost certainly be ignored.

Four main principles lie behind our guidelines:

1 **Annual management is essential on enclosed verges.** Some form of verge management is essential to maintain flower-rich habitats. Without regular management, studies have shown that most grassland flowers disappear rapidly. Even if the grass is left uncut for a single year, coarser vegetation will start to become more dominant. Over time, uncut verges turn into scrub and woodland.

2 **Grow, flower, seed, mow.** Plants need to complete their full life cycle each year – i.e. allowed to grow, flower and set seed – in order to thrive. Generally, most flowers take roughly 6 to 8 weeks from flowering to successfully shed viable seed. Cutting plants down in full flower deprives invertebrates of nectar and pollen and stops plants reproducing from seed. Regular and early cutting quickly eliminates some species, such as yellow rattle, which can even help keep grasses under control.

3 **Remove the cuttings.** Removal of grass clippings plays a major role in maintaining species-rich vegetation on verges, curbing the growth of vigorous plants that smother their neighbours and helping to reduce soil nutrient levels. It also removes the 'thatch' of dead vegetation, exposing underlying soil and giving seeds room to germinate. Although very difficult to do in practice, some councils are investigating the use of clippings as biofuel, making the practice economically viable.

4 **Mixing it up.** Different plants, insects and animals require different ecological conditions, so verges with a diversity of open areas, scrub and woodland will support more species. A mixture of long and short grass will also benefit invertebrates. Leaving a strip of longer, uncut grass at the back of the verge can is especially helpful for invertebrates, as long as it can be cut on a rotation every 2-3 years. Even if the whole width of the verge is cut, some long grass is usually left standing at the back of the verge, providing essential habitat.

Plantlife's road verge management guidelines

How

We have developed two main management prescriptions. The first (**A. Basic road verge management**) is aimed at all enclosed grassy verges in the lowlands, regardless of current condition. The second (B. **Enhanced road verge management**) is aimed at sections of verge that are still rich in wild flowers, such as Road Verge Nature Reserves. We have also provided advice on the management of other types of road verge habitats.

A Basic road verge management for enclosed, grassy verges

The following should be undertaken on all enclosed grassy road verges (apart from those areas, such as junctions, where safety is a priority)

If only one cut is possible:

Cut the full width of the verge once a year, between mid-July and the end of September. This allows plants to flower and, importantly, gives time for seed to be set.

If more cuts are required, do one of the following:

Cut the full width of the verge between mid-July and the end of September. Then cut once more before Christmas. **This is the ideal option to conserve and enhance wild flowers**, as it mimics the pattern of traditional meadow management.

Or...

Cut the full width of the verge as early as possible, during February and March. This is before most verge plants flower and it won't disturb ground-nesting birds. Cut the full verge again during September and October. This slightly later date for the second cut allows plants that were cut earlier in the year sufficient time to flower and set seed.

If it is not practical or desirable to cut the whole width of the verge:

On large verges, cut a 1 metre strip at the edge of the verge as early as possible – during February and March. This allows grass at the back of the verge to grow longer, providing a diversity of habitat that is especially important for invertebrates.

Or...

On small verges of less than 1 metre, leave some sections uncut, for example 100-metre sections every 200 metres.

In both these cases, cut the full width of the verge during September and October.

B Enhanced road verge management for grassy verges

A full or even partial survey of the wildlife interests of a network of verges can be very useful in determining their nature conservation value and determine management priorities. Those identified as being of medium or high quality, depending on the type of vegetation and diversity of species present, should receive more careful management as follows:

Typical meadow-type verges: To maintain a typical meadow-type verge (e.g. grassland around knee-height with cowslip, buttercups, oxeye daisy, knapweeds, crane's-bills, orchids), cut the full width of the verge twice a year between mid-July and Christmas. Generally, the later the first cut the better, as it allows more species to shed their seed, especially orchids; on verges of low fertility and high diversity the first cut can be delayed to mid-October, with another cut if necessary before Christmas. See also 'collection of clippings' on the right.

Short, flower-rich grassy verges: On dry soils (e.g. chalk grassland) and in coastal situations with short species-rich grassland that reaches around ankle height, frequent cutting can take place up until April and commence again from the end of August. This avoids the main flowering period from mid-May through to the end of August and will help develop a short flower-rich turf with clovers, trefoils, self-heal and other small species. These verges can provide a long continuity of flowers that are valuable for bees and other insects.

Damp verges: Many plants of damp and wet soils, like purple-loosestrife, meadowsweet and hemp-agrimony, tend to grow at a slower rate through the year and flower slightly later than typical road verge flora. Damp verges in upland areas, with Devil's-bit scabious and melancholy thistle, will also flower later in the year. Cutting times for such verges should be adjusted accordingly, delaying the cut by about a month until seed has been set.

Collection of clippings: On all grassy verges of wildlife importance, it is very beneficial to gather and remove grass cuttings, either by hand or by use of suitable cut-and-collect machinery. This will reduce the build-up of organic material (a thatch of cut grass), keep nutrient levels low, and ensure plenty of bare ground for plants to regenerate from seed. Studies have shown this to be a major factor in maintaining verge biodiversity. Cuttings from wildflower-rich verges can be used as green hay to benefit other local verges, meadows or grasslands.

Rare species: Where a verge has a species of special interest (for example, exceptional vegetation or a rare flower or insect), specialist advice should be sought regarding the most appropriate management regime. Such verges may be singled out by the Highways Agency, the County or Parish Council, or the local Wildlife Trust as Road Verge Nature Reserves (RVNRs) or as County Wildlife Sites (depending on county).

C Management of other verge habitats

Unenclosed road verges: Where verges are not separated from the surrounding countryside by a fence, hedge or wall, they will be grazed by livestock wandering from the land around. Usually, they do not need any additional management. In upland areas, such verges don't grow as vigorously, but in the absence of grazing grassy verges may require a cut every 3-5 years, ideally in September. Changes in the management of surrounding farmland and habitats (for example undergrazing of heathland commons in lowland England and Wales), can affect the vegetation of verges and, if the change is deleterious, should be tackled as part of the management of the habitat as a whole.

Ditches: These are very important components of the verge, providing both essential drainage and opportunities for wildlife. Often, they are enriched with silt and nitrogen washed from the road's surface and from neighbouring farmland. As a result, they can grow luxuriantly but, being at the back of the verge, generally don't pose a problem for road safety. They should be maintained regularly by digging out; deposition of the spoil on the surrounding verge is generally not a problem and can actually be beneficial, providing bare soil for germination.

Woodland and shaded verges: Verges rich in early-spring flowering woodland species, such as primrose, bluebell, wood anemone and ransoms, often have a thin growth of grass and don't usually need cutting very often; a late summer cut, though, is very helpful to keep woody plants like brambles, holly and sapling trees under control. Such verges should not be cut between the end of January and mid-July to allow early spring flowers to grow and set seed. Steep, shaded lanesides and hedge banks should be treated in the same way. It is not usually necessary to collect clippings if the grass is thin.

Hedgerows, scrub and woodland: On larger verges, areas of woodland and scrub at the back of the verge should be retained, as these will provide valuable habitats for birds and other wildlife. These should be managed by cutting on a rotation of up to 10 years. Hedgerows also provide important shelter and should be maintained on a rotational basis. Any cut material should be removed from the verge.

Herbicides: Wherever possible, eliminate the general use of herbicides. Their use encourages the development of vigorous, rank vegetation and a vicious cycle of spraying can develop, where costly herbicides are used repeatedly to control the same weeds again and again. They do, however, have a role to play in the control of invasive native and non-native species, notifiable weeds and for treating the stumps of cut trees and shrubs where alternative techniques are ineffective.

Benefits for bees, butterflies and beetles

As Sir David Attenborough puts it,

"plants capture energy from the sun and all life on land, directly or indirectly, depends on them"

If we get the plants right, all other wildlife has a chance of thriving. Road verges are essential refuges for the wild flowers that support our wildlife and their value in the fight to conserve bees, butterflies and beetles cannot be underestimated. Thankfully, this contribution is now being recognised; several national pollinator plans and strategies have targets to bring back colour to our verges.

But plants provide invertebrates with a wide range of resources. While the current focus is firmly on providing nectar and pollen for declining pollinators, especially bees, it's worth remembering that there is very much more to the relationship between plants and invertebrates. The most critical role that plants play from an invertebrate point of view is as a source of food: caterpillars of moths and butterflies, aphids, grubs, weevils, grasshoppers, mites, gall wasps, shield bugs, sawflies – the list of invertebrates that feed on living and dead plant material is enormous.

The **top 10** road verge flowers that support the highest numbers of invertebrates are:

1. **Bird's-foot trefoil** - *Lotus corniculatus* (160 species supported)
2. **Yarrow** - *Achillea millefolium* (141 species)
3. **Red clover** - *Trifolium pratense* (115 species)
4. **Dandelion** - *Taraxacum officinale* (107 species)
5. **Ragwort** - *Senecio jacobaea* (107 species)
6. **Lady's bedstraw** - *Galium verum* (101 species)
7. **Hedge bedstraw** - *Galium mollugo* (100 species)
8. **White clover** - *Trifolium repens* (98 species)
9. **Meadowsweet** - *Filipendula ulmaria* (91 species)
10. **Oxeye daisy** - *Leucanthemum vulgare* (85 species)

You can see that, even if only a small number of flowering plant species can be encouraged to grow on verges, the potential benefits are huge. And if the insects return, so does the wildlife that feeds on them, all the way to the top of the food chain.

Our main aims when managing road verges for invertebrates are:

- Increase native plant diversity to provide the maximum range of food plants, including pollen and nectar
- No cutting between May and the end of September as this destroys food plants, flowers, eggs and larvae
- Provide a diverse vegetation structure, including short and long grass, and areas of scrub to provide shelter and roosting sites

Our road verge management guidelines have been produced with invertebrates in mind. A balance has to be reached, though because, for many species, it is very beneficial to leave areas of uncut grass – standing vegetation is used by many overwintering invertebrates. However, leaving verges uncut rapidly leads to plant species loss – in as little as one year – and this is highly detrimental to overall biodiversity. While our advice is to "cut the full width of the verge", in reality standing vegetation is normally left at the back of the verge and around scrub, providing valuable shelter.

We must also be mindful of the need to keep the wild in wildflower. While 'pictoral meadows' 'pollinator mixtures' (often with many non-native species) provide a quick-fix for pollinators, they do very little to support the huge numbers of invertebrates that feed on native meadow flowers. They're also expensive to buy and grow, needing considerable contractor time. If we want a sustainable and long-term future for our bees, butterflies and beetles, we should instead be using natural seeding techniques to bring back the flowers to our verges.

Yellow rattle

nature's own lawnmower

This special wild flower has the potential to be a major player in the future of our grassy verges. It does three essential jobs:

- **Reduces the growth of grass by up to 60%**; as a result, verges do not need to be cut so early and so often, with consequent **savings on the verge mowing budget**.
- Opens up the grass sward, **creating room for other wild flowers to grow**; there is a direct correlation between the number of yellow rattle plants and the number and diversity of other flowers in flower-rich grasslands.
- With less grass growth each year, **the need to remove clippings is reduced** and soil fertility remains lower.

Yellow rattle (*Rhinanthus minor*)
Illustration by Andrew Evans

So, it's a **win-win situation**.

Yellow rattle (*Rhinanthus minor*) is a semi-parasitic annual. Each spring the seeds germinate and, as the roots grow, they tap into those of the grasses growing around them. Water and nutrients are drawn from the grasses, considerably reducing their vigour and allowing other more delicate meadow flowers to thrive in their place. The yellow flowers are followed by many inflated seed pods, which rattle with seeds when they are ripe. In the past, this sound was often used by farmers as a sign that the hay was ready to cut.

Seed collected from local sources – such as wildflower meadows – can be sown in late summer after the first cut of grass has taken place and the verge has been scarified. Once a verge has been inoculated with yellow rattle, no more additional work is needed; it will spread rapidly, **but only if the verge is not cut until after seed has been set**, usually from mid-July onwards. As long as seed is produced, this will fall naturally into the verge and ensure more yellow rattle next year. The early mowing of verges is a primary reason yellow rattle has been lost from many verges.

Trials are now underway in England and Wales to assess the effectiveness of yellow rattle as a means of controlling the grass.

Verges and the law

Road verges are not afforded any legal protection in the UK. The way they are managed is entirely down to their owners and those authorities charged with their maintenance and upkeep. This means that there is no control over the way verges are managed. The only exceptions are where a specially protected species – one listed under Schedule 8 the Wildlife & Countryside Act 1981 – grows on a verge. This includes plants such as lizard orchid, Deptford pink and meadow clary. Such species cannot legally be 'destroyed' if they grow on a verge or any other habitat.

Roads and road verges are managed by the relevant designated highway authority, typically as follows:

NATIONAL ROADS: motorways and trunk A roads are managed by Highways England, the North and Mid Wales Trunk Road Agency and the South Wales Trunk Road Agency, Transport Scotland and Transport NI.

COUNTY ROADS: in rural areas, usually managed by the council or local authority that has been designated the highway authority, though parish councils may undertake additional verge cutting within communities under delegated schemes.

The Countryside and Rights of Way Act 2000 places a duty on government departments and public authorities in England and Wales to show regard for conserving biodiversity in all their actions. In particular, this regard must be shown on public authority managed land, including roads and verges.

In 2015, Highways England produced a new **plan to protect and increase biodiversity** on the motorway and trunk road verges of England. This lists 5 broad outcomes to measure progress and the agency will be working closely with partner organisations to help deliver the plan.

The Welsh Assembly Government published its 10-year **Trunk Road Estate Biodiversity Action Plan (TREBAP)** in January 2004. This set actions and targets for 2014, made links with relevant species and habitat Biodiversity Action Plans, and aimed to raise awareness of the biodiversity interest of the trunk road and motorway network. An updated plan does not appear to be available.

In Scotland, the Nature Conservation Act (2004) places a duty on Transport Scotland, as a public body to 'further the conservation of biodiversity in exercising its functions'; see **here** for more information. Furthermore, the Landscape and Ecosystems objective seeks a landscape level outcome in which, "Organisms can move, feed, reproduce and disperse effectively, and are better able to adapt to changing circumstances of land use and climate change".

Currently, there is no published plan that specifies the management of biodiversity on road verges in Northern Ireland. The Biodiversity Strategy for Northern Ireland to 2020 has a stated mission "To make progress towards halting overall biodiversity loss, establish an ecosystem approach and help business and society in general have a greater understanding of the benefits that nature can bring to everyday life in Northern Ireland"

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We are Plantlife

Wild flowers and plants play a fundamental role for wildlife, and their colour and character light up our landscapes. But without our help, this priceless natural heritage is in danger of being lost.

Plantlife is the charity that speaks up for our wild plants, lichens and fungi. From the open spaces of our nature reserves to the corridors of government, we're here to raise their profile, to celebrate their beauty and to protect their future.

Join us in enjoying the very best that nature has to offer

Britain's countryside
Save it with flowers