



# Enhancing our natural environment

Our Approach  
To Championing  
Pollinators

WONDERFUL ON TAP

SEVERN  
TRENT





This is our approach to championing pollinators across the Severn Trent region. Pollination is an ecosystem service which impacts many aspects of the natural world as well as our ability to produce food sustainably. We see doing our part to help protect pollinators as an important contribution to nature recovery across our region.

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# 1. Why pollinators matter to Severn Trent

Pollinators are vitally important for ecosystem function because they are essential for the life cycle of almost all flowering plants. Through the ecosystem services they provide, pollinators support crop production, biodiversity, and indirectly, water quality. With pollinator populations currently facing steep declines, it is essential to take landscape scale action to support their recovery.

Further information on Severn Trent's approach to the environment and biodiversity. This Pollinator Strategy forms part of our Biodiversity Strategy and Action Plan and sits within our wider Environment Strategy, Caring for our Environment.

It's estimated **87.5%** of the world's flowering plants are pollinated by animals

**4,000** species of pollinators are in the UK

There are approx **270** species of wild bee in the UK

## 1.1 What are pollinators?

Pollinators transport pollen from one plant to another, allowing plant reproduction to take place. They are critical for the life cycle of most flowering plants - it's estimated that 87.5% of the world's flowering plants are pollinated by animals. In the UK, pollinators include a wide range of insect species, from bumblebees and butterflies to beetles and moths. It's certainly not just the familiar honeybee - it is estimated that there are at least 4,000 species of pollinators in the UK.

Unfortunately, our pollinators are at risk and a widespread loss of pollinator species across the UK has occurred due to a number of factors including pesticide use, habitat loss due to land use change, and climate change. Over the last 50 years, half the bee, butterfly and moth species studied in the 2013 European Red List for Bees, State of Nature Report have declined. In addition, Buglife confirmed their survey showed a near 60% decline in numbers of flying insects across the UK in just the last 17 years - <https://cdn.buglife.org.uk/2022/05/Bugs-Matter-2021-National-Report.pdf>. This will include some non-pollinators of course, but shows the trend. It's vital that we all play our part in creating and establishing sustainable habitats where pollinators can thrive. That's why we are working to protect pollinators.

## 1.2 Why do pollinators matter?

Pollination is vital for a healthy ecosystem, and pollinators support essential activities such as crop production, contributing an estimated £400m per year to the UK economy. These services indirectly provide wider benefits, including improved water quality. For example, studies have shown that it can be more profitable for farmers to improve pollinator habitat alongside a reduced pesticide regime rather than increasing pesticides to achieve the same yield.

The decrease in pesticide use benefits the farmer, who saves money, and improves water quality as there is less chemical run-off into waterways. Increased wildflower health and coverage facilitated by pollination also aids the improvement of water quality though preventing soil erosion, as plants' foliage protects soil from direct rain, and their roots hold soil in place. Plants also act as natural water filters, taking up a range of contaminants from the soil and away from our water sources.

## Did you know? Keeping honeybees won't save the bees!

### Did you know that the European honeybee is a domesticated animal?

They are an equivalent to the chicken in the bird world - and if you were carrying out bird conservation, adding an aviary of chickens to a garden wouldn't be much help. That's why adding a hive of honeybees doesn't help save the bees. There is even evidence that adding honeybees is harming Britain's wild bees, as they compete for resources and spread disease. There are an estimated 270 species of wild bee in the UK, made up of bumblebees and solitary bees. Many of these bees are of conservation concern.



Credit: © Natural England/Allan Drewitt.

## Our priorities:

- Nature recovery on our own land
- Boosting nature beyond our boundaries
- Making nature integral to catchment management





## 2. Understanding pollinator diversity on our land

We can't protect or enhance our biodiversity if we do not know what we already have. Therefore, we are working to understand what biodiversity and pollinators our land supports. That way, we can create an effective strategy to protect them.

### 2.1 Biodiversity audits

As part of the first phase of carrying out biodiversity audits across our whole estate, we commissioned local Wildlife and Rivers Trusts to undertake audits on 63 priority sites. The audits included extended habitat surveys and the creation of site-specific biodiversity action plans (see our Biodiversity Strategy and Action Plan for more information). To take into account pollinator habitat, the monitoring cards used by the Trusts were modified to include a section specifically on habitats such as wildflowers and nesting sites (see Box 1).

Protected invertebrate species on our sites

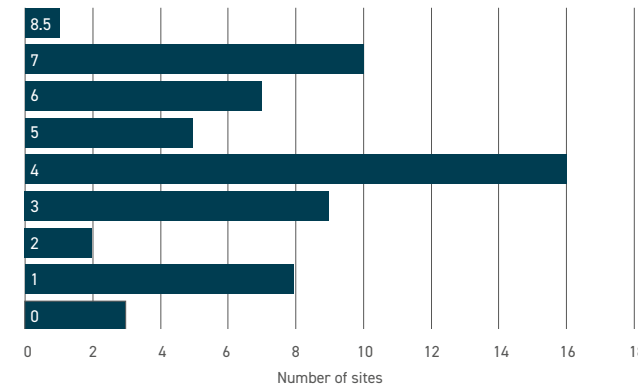
Surveys of our 63 priority sites have identified several rare and protected insect species, including a variety of pollinators. This includes a rare species of bumblebee and several rare butterfly species. The management of the priority sites includes making sure that these protected species are accounted for in the management plans.

In total, biodiversity surveys found protected invertebrates on 24 of our priority sites. It's likely that specialist invertebrate surveys of these sites would reveal even more across our priority sites. Therefore, we know that our land supports a range of important pollinators, which we want to support.

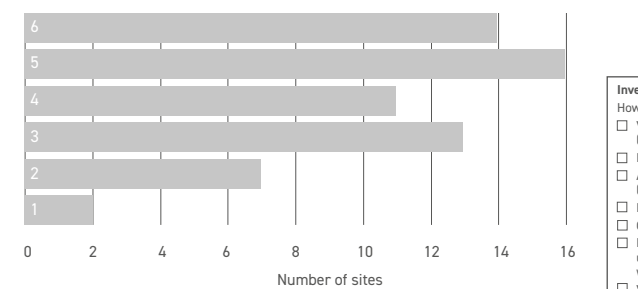
**Figure 1.** A count of invertebrate micro-habitat scores across 61 Severn Trent priority sites. The average score was 4.1 and the mode score was 4. Habitats were scored using the following guidance: 7+ = valuable, 4+ = high potential <4 = limited potential.

**Figure 2.** A count of pollinator resources noted across 61 Severn Trent priority sites as part of the pollinator habitat survey. The average score was 3.2 resources per site and the mode score was 4.

**Figure 1.** Count of invertebrate micro-habitat scores.



**Figure 2.** Count of pollinator habitats



Results of these surveys show that sites scored an average invertebrate micro-habitat score of 4.1 (where 7+ = valuable, 4+ = high potential <4 = limited potential), suggesting sites are generally of moderate to high potential for invertebrates. These results suggest that with some intervention, many of our sites could become brilliant habitats for a range of insect species. A breakdown of the invertebrate micro-habitat scores can be seen in figure 1.

Results of the pollinator habitat survey suggest that on average sites were noted to have 3.2 of the 5 pollinator resources being surveyed. This suggests that there are a range of pollinator habitats already present on Severn Trent's sites, but that there is still room to improve and increase these. A breakdown of the invertebrate micro-habitat scores can be seen in figure 2.

- Invertebrate Micro-habitat Potential**  
How many of the following are present? Tick as appropriate:
- Variable topography or areas of vertical or near vertical exposed soil (e.g. on river banks)
  - Free-draining light soils
  - At least some areas of species-rich, semi-natural vegetation (no evidence of improvement using inorganic fertilizers)
  - Frequent patches of bare ground 0.01-0.1m<sup>2</sup> in size
  - Occasional to abundant anthills
  - Patches of mixed, scattered scrub; one or more ancient or veteran trees; unpolluted, natural springs and flushes; or other temporary or permanent water bodies with low nutrient status
  - Variable vegetation structure with frequent patches of tussocks (over 5cm taller than the surrounding vegetation) and short turf (less than 3cm total height) with tussocks remaining in place over winter.
  - Abundant seed or flower production throughout the year
  - Dry stone walls or other walls with soft friable mortar
  - Fibrous dung (i.e. Dung that retains a solid shape on the ground) from cattle or horse droppings which attracts beetles.
- Pollinator habitat**
- Location and area of tussocky grass in sunny location with potential as hibernation/nesting site (bumblebees).
  - Location and area of bare ground and wall/structures (solitary bees)
  - Areas of short, open, and warm grassland (carder bees)
  - Location and length of species-rich hedgerow with good sources of nectar and pollen particularly early (March - June) and late (September - October)
  - Location and area of other particularly good sources of nectar and pollen

**Box 1.** The monitoring cards used by the Trusts included an invertebrate micro-habitat potential survey and were also modified to include a section specifically on pollinator habitat.

### Some notable priority insect species on Severn Trent's land:

- Cinnabar Moth - *Tyria Jacobaeae*
- Small Heath Butterfly - *Coenonympha Pamphilus*
- Wall Butterfly - *Lasiommata Megera*
- Dingy Skipper - *Erynnis Tages*
- Grizzled Skipper - *Pyrgus Malvae*
- Five-Spot Ladybird - *Coccinella Quinquepunctata*
- Red-shanked Carder Bee - *Bombus Ruderarius*



Credit: © Natural England/Allan Drewitt.





## 2.2 Biodiversity Monitoring Programme

We have implemented a Biodiversity Monitoring Programme on sites where we are creating or enhancing meadow grasslands or managing woodlands. By monitoring the abundance of key groups of animals and plants, we can evidence tangible outcomes of the improvement works.

There are two key groups of species which are being monitored as part of the programme. One of those groups is pollinator focused, and involves transects monitoring bumblebees, butterflies and flowering plants. There is also fixed-point monitoring covering reptiles, bats, birds and dormice. The monitoring will be completed by a combination of our in-house ecologists and other staff located on our sites.

We are working to ensure that our staff, using a citizen science approach are equipped to carry out accurate data collection on these species. As part of this we have created a Biodiversity Monitoring app, which allows us to collect the survey data spatially and in real time. This means we can spot location trends in abundance and have a clear understanding of where the monitoring took place on site. We are also training staff, both online and on-site, in methods for accurate data collection and species identification.

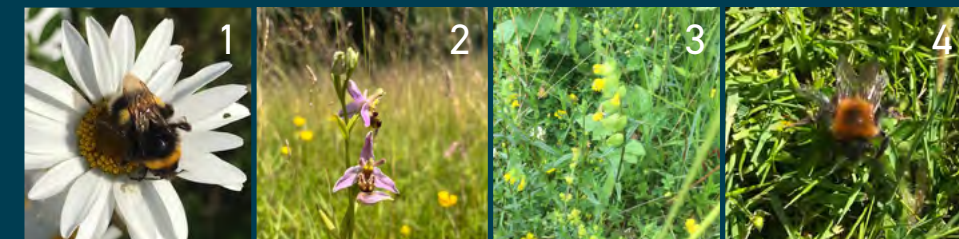
During the pilot period, over 60 records of bumblebees, butterflies and flowering plants have been collected.

## Our ambition - contributing to national schemes

We hope that the data collected in our biodiversity monitoring programme can be used to contribute to national monitoring schemes. For example, one of the UK's biggest national monitoring schemes is the Bumblebee Conservation Trust's (BBCT's) BeeWalk scheme. BeeWalk is a standardised bumblebee-monitoring scheme which involves volunteer 'BeeWalkers' walking the same fixed route (transect) once a month between March and October, counting the bumblebees seen and identifying them to species and caste (queen, worker, male) where possible.

Our monitoring similarly looks for bumblebees along transects, and therefore we plan to work towards submitting our data to the BeeWalk scheme, contributing to the national conservation effort to monitor bumblebee populations. In addition, our ambition is to submit other insect identification records to national record centres, adding to national understanding on insect population health and distribution.

- 1 **Buff/White Tailed Bumblebee** - Minworth STW
- 2 **Bee Orchid** - Draycote Water
- 3 **Yellow Rattle** - Derby STW
- 4 **Bumblebee** - Mile Oak STW







### 3. Promoting healthy pollinator populations

To ensure that wild pollinators are given the best possible chance to thrive on our land, we are implementing a number of actions to improve their habitat.

Our estate covers a wide range of habitat types, from urban areas to woodland and grassland, tenanted farmland and forestry. Protecting and enhancing biodiversity across the land that we own is a natural place for us to start and is at the core of our contribution to nature recovery. For pollinators, small improvements can make a big impact and making sure that they have enough suitable habitat on our land is a priority.

#### 3.1 Habitat improvement on priority sites

The biodiversity audits on the initial 63 priority sites have highlighted potential for habitat improvement on those sites. As such, the auditors have given recommendations for habitat improvement via creation and enhancement mechanisms. These recommendations are designed to improve habitat health in general,

which by virtue will have positive effects on the wide range of species that depend upon those habitats, including pollinators.

Due to the wide range of habitats that pollinators rely on and the interconnectivity of the landscape, it's probable that almost all of the recommendations could have some impact on pollinators. However, it's likely that improvements to both grasslands and hedgerows will have the biggest positive impact on the largest range of pollinator species. During the audits it was recommended that creation and enhancement of grassland should occur on 57 of the sites and for hedgerows on 19 sites. In addition to the grassland and hedgerow habitat improvements, 19 sites had pollinator-specific recommendations. A full breakdown of suggestions can be found in table 1 overleaf.



The biodiversity audits on the initial 63 priority sites have highlighted potential for habitat improvement on those sites.

#### Get in touch

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Healthy grasslands should be species rich, providing a range of resources for pollinators, and therefore all of these improvements should benefit pollinator populations.

The general theme of the grassland improvement suggested on the sites was for creation of wildflower meadows through sowing seed mixes, improvement of grasslands through improved mowing regimes and other general maintenance. In addition, the prevention of herbicide application was suggested. Healthy grasslands should be species rich, providing a range of resources for pollinators, and therefore all of these improvements should benefit pollinator populations. In addition, improvements to and expansion of hedgerows is also recommended, and is further detailed below. The pollinator habitat improvement suggestions give advice on measures that will specifically benefit pollinator species, such as creating nesting habitat by adding logs and creating bare ground.

A summary of the relevant recommendations can be found in table 2. Further detail and information about the recommendations can be found in our Biodiversity Action Plan and further details about how grassland and hedgerow improvements help pollinators can be found in section 3.2 of this document.

	Grassland	Hedgerow	Pollinator habitat
<b>Total improvement suggestion</b>	57	19	19
<b>Creation of habitat</b>	1	4	10
<b>Enhancement of habitat</b>	45	10	9
<b>Creation and Enhancement</b>	11	5	0

Table 1. Improvement suggestions relevant to pollinators for the priority sites surveyed by the Wildlife Trusts, split by habitat type and improvement advice type.

Habitat	Grassland	Hedgerow	Pollinator habitat
<b>Creation</b>	Create a wildflower meadow through sowing seed mix and mowing regimes	Create new native hedgerow	Add scrapes on grassland to create bare soil; Add bee logs for solitary bees
<b>Enhancement</b>	Implement mowing regimes (various); Improve meadows through sowing and mowing regimes; Prevent scrub encroachment; Prevent herbicide application	Fill gap in hedgerows; Allow expansion; General management needed	Management to retain bare ground and sandy banks; Management to retain tussocky grass.

Table 2. The most frequently advised courses of action for creation and enhancement on the sites of the pollinator relevant habitats.

## Case study

Pollinator Pathways with Heart of England Forest



We've been working with the Heart of England Forest to create pollinator pathways. The 30m wide pathways are planned across 68ha of the Heart of England Forest, on a grassland network set within a 1,000ha woodland. Seed injection sowing of wildflower seeds will be carried out on the extensive grassland ride network, creating a seedbank for natural dispersal in subsequent years.

Improvement works will benefit 68ha of land over 5 years (2020-2025). Year 1 of AMP7 the project delivered 13.6ha of improvements and an additional 13.6ha will be improved each year until 2025.







We will be working across our estate to re-instate this habitat where possible. Whether this be in the form of mini meadows, field margins or other pollinator pathways, increasing wildflowers will help support pollinator populations and other insects that thrive in those habitats.

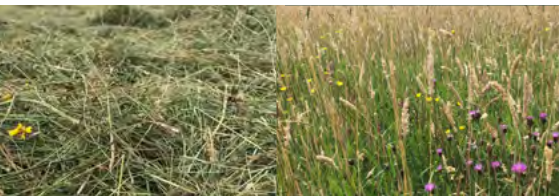
### 3.2 Specific habitat improvement for wild bees

The best way to support wild pollinator populations is to simply provide them with the habitat that they need to survive. There are many ways in which this can be done, but all essentially involve making sure that pollinators have food (by providing flowers with enough pollen and nectar) when they need it, habitat that is suitable for shelter and reproduction, and reducing the use of harmful chemicals.

**We will be providing habitat through a number of interventions across our estate, to ensure that pollinators have what they need to thrive:**

#### Planting flower margins and mini meadows

Since the end of World War II, more than 97% of the UK's wildflower meadows have been lost. The loss is a result of agricultural intensification and is cited as one of the biggest reasons for insect declines in the UK. Yet, these meadows have a number of benefits for cropland.



### Case study

Restoring 14ha of wildflower meadow



We're working with a local landowner to restore a 14ha area of species poor temporary grassland to a species rich wildflower meadow. Hay from a nearby donor field, along with a small amount of native wildflower seed from a specialist supplier, was used to populate the 14ha piece of land with the appropriate flower seeds. Sheep were the grazed on the land for carefully selected time intervals to embed seeds to create good conditions for wildflowers to grow.

Now a number of wildflowers are well established in the meadow, and it is improving year by year. Black Knapweed has established particularly well, Yellow Rattle is widespread, Ribwort Plantain, Meadow Buttercup are frequent, and Red Clover and Birds Foot Trefoil also occur. These species provide food and sustenance that certain pollinators depend on. Birds Foot Trefoil for example is one of the plants common blue butterflies lay their larva on



Since the end of World War II, more than **97%** of the UK's wildflower meadows have been lost.

The benefits include both increased pollination services due to the boosted pollinator population and increased natural pest management, as the meadows support insects which eat other insects considered to be pests on cropland.

We will be working across our estate to re-instate this habitat where possible. Whether this be in the form of mini meadows, field margins or other pollinator pathways, increasing wildflowers will help support pollinator populations and other insects that thrive in those habitats. These areas will be created through a combination of reduced mowing, allowing plants to grow, and using pollinator specific wildflower mixes.

We've been working closely with the Gloucestershire Wildlife Trust, on a project that has involved the restoration of 6.5ha of species rich grassland at Cleeve Hill.

Three interventions have been identified on the site to improve grassland diversity; a bramble and scrub cut, a new boundary fence, and sowing new plant species. We will be working with the Gloucestershire Wildlife Trust to implement the interventions, improving the habitat for the species which rely on it.



### Case study

Species Rich Grassland Restoration with the Gloucestershire Wildlife Trust

Credit: © Natural England:Chris Gomersall.





### Keeping our grasslands healthy

As well as planting flower margins and mini meadows, we will work to ensure that our fields and grasslands contain diverse herbal leys and wildflowers where possible. Diverse herbal leys are grasslands made up of a range of different legume, grass and other plant species, which vary in traits such as root depth and drought tolerance. This more diverse alternative to a one-species grass field provides more habitat and food for pollinators and a range of other insects. In addition, it is excellent for soil health.

When sowing seed mixes and keeping grasslands healthy, it is important to do so carefully with a number of considerations. Firstly, it's vital that any plants chosen are naturally occurring species that are valuable to insects, rather than plants that just look nice for people. In addition, plants must be chosen that are appropriate for the soil and geology of the area, to ensure that they are long-lasting and can naturally thrive. To make sure that we are sowing the correct seeds, Severn Trent have done extensive research into what our land needs.

The findings of this work and the resulting wildflower mixes, as well as further information on management of different grassland types, can be found in the appendix. We work with our own in-house ecology team and external partners to ensure that our grasslands are kept healthy.

### Improving our hedgerows

The dense vegetation of a hedgerow provides protection and resources for a range of animals. Hedgerows are an excellent source of pollen and nectar for invertebrates, often providing vital floral resources early and late in the year. They provide shelter for pollinators throughout the year, and a place for hibernating queen bumblebees to stay over winter. Hedgerows also provide fruit and berries for farmland birds, and nesting and hibernation habitat for a variety of farm wildlife. Unfortunately, agricultural intensification has seen a significant loss of hedgerows across the UK, some areas seeing a 50% loss since World War II. In addition, even if hedgerows have not been lost completely, they are often in poor condition and therefore of poor ecological value.

We will be working to improve the hedgerows across our estate by properly managing the ones that we have and looking to plant more where possible. We're also working with local farmers to do the same. This year-round habitat for insect pollinators should benefit adjacent crops and will re-create lost wildlife corridors, helping to link existing habitats and to create a healthier ecosystem.

Hedgerows also provide fruit and berries for farmland birds, and nesting and hibernation habitat for a variety of farm wildlife.

## Get in touch

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Severn Trent has provided tree saplings/hedgerow whips to farmers in the region to create woodland areas or hedgerows or gap up and improve pre-existing hedgerows. At the end of year one, Severn Trent had provided saplings which have been planted over 70.2ha of woodland or hedgerows. The species provided are a mix of local species including hawthorn, Dog Rose, crab apple for hedges, all of which are brilliant resources for pollinators.



Before (top) and after (bottom) photos of three new hedgerows created by an applicant of the hedgerow and woodland scheme.

Case study  
Severn Trent  
hedgerow and  
woodland scheme







### Minimising unnecessary chemical inputs

Reducing pesticide use is one of the biggest changes we can make to have a positive impact on pollinators. That is because even though pesticides are used to impact insects which damage crops, pollinators and other beneficial insects inevitably come into contact with them, resulting in a range of negative effects or death for those beneficial insects. In addition, focus on water quality brings the use of chemical inputs into greater focus for us as a water utility provider.

Where land is under our control, we will only use pesticides as a last resort. Our policy on Weed and Insect Control Techniques states that "Pesticides should be seen as a last resort for the management of water company land and assets. All other non-chemical options should be explored prior to use." This means that pesticides should not be used unless all other less harmful options have been exhausted. Where pesticide use is to be carried out, steps outlined in the decision tree should be followed and a risk assessment should be carried out.

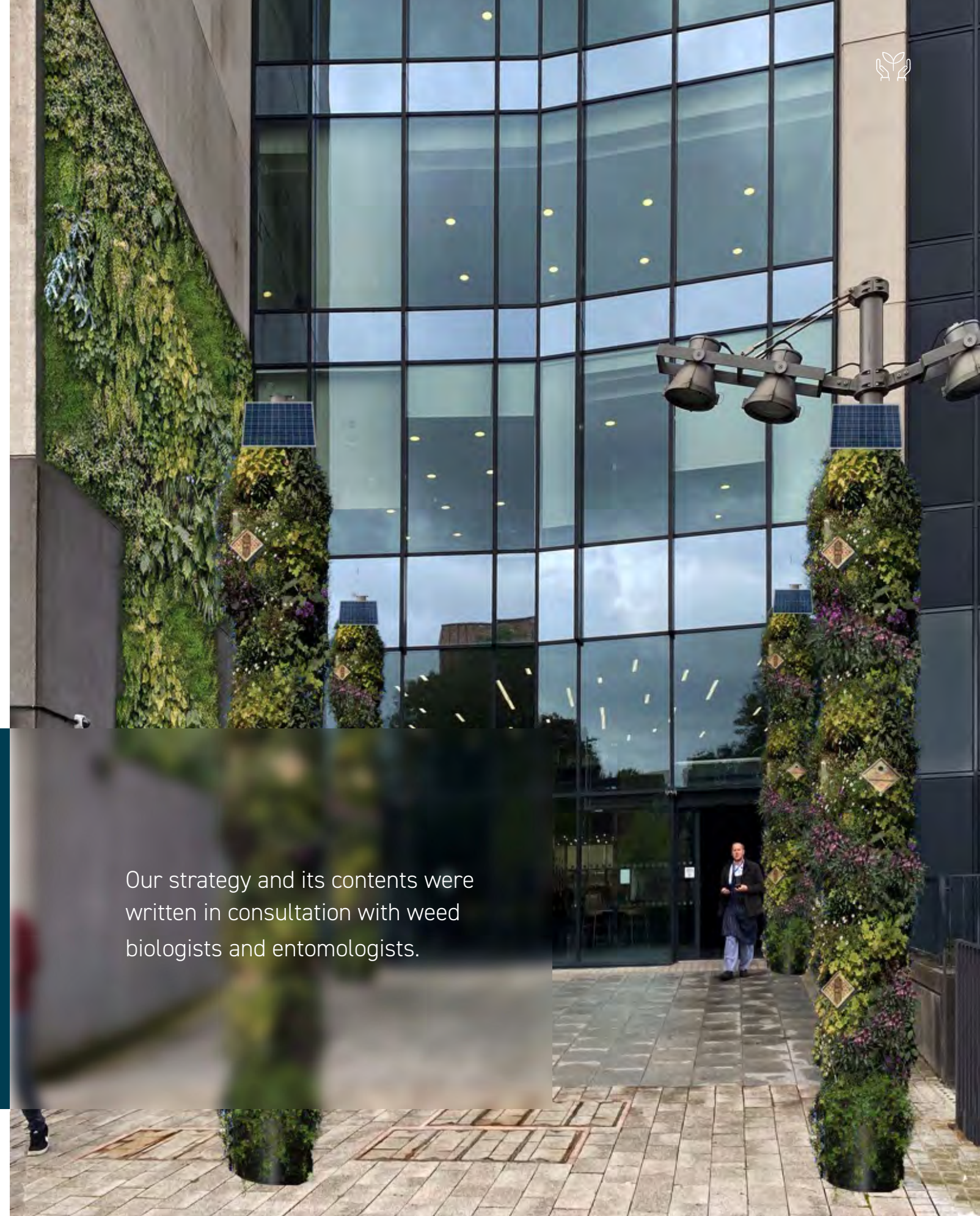
This includes chemical inputs for the control of both plants and insects. The decision trees explore numerous ways to address the problem using natural or chemical-free control techniques, including a frequent monitoring process, which only results in pesticide use if the problem is out of control. Our strategy and its contents were written in consultation with weed biologists and entomologists.

By minimising chemical inputs such as those mentioned above, we are not only improving habitat for pollinators and other important insects, but are reducing the chemical run-off into our water ways.

### Improving resources in urban areas

For animals as small as most pollinators, the presence of floral resources frequently in their flight paths is vital. For example, it's estimated that bumblebees are only ever 40 minutes of flight away from starvation, and that's with a full stomach to start with! It's therefore vital for these insects that floral resources occur regularly over the landscape. This includes in urban areas, in which patches of floral resources can be critical in an otherwise barren landscape. In addition to providing floral resources, urban greening offers a range of other benefits such as improving air quality and improving the aesthetic appearance of buildings.

Therefore, Severn Trent are developing a programme of works to assess building suitability for installing green infrastructure. Green infrastructure suitability will be assessed using a set of criteria, and any Severn Trent buildings which meet the criteria will be considered for green infrastructure as part of our routine building inspections and assessments. Depending on the results of these assessments, we will look to carry out urban greening on our infrastructure where possible.



Our strategy and its contents were written in consultation with weed biologists and entomologists.

**Pictured:** Examples of potential urban greening possibilities at the Severn Trent Head Office. A living wall covers the wall to the left of the picture, and light poles are planted with a range of plants and have been fitted with solitary bee boxes.





## What's a 'bee brick'?

A bee brick is a brick that is shaped like a normal brick, but has holes built into it, designed to be used by solitary bees. Many solitary bees naturally nest in small holes that appear in building walls, so installing bee bricks at the start could provide even more homes for them. The actual impact of bee bricks on bee populations is not known, and the true value of the bricks to solitary bees is sometimes debated. However, we believe the bee bricks can be used to compliment the range of work we are doing to create natural homes for bees, and at a minimum create a discussion point and therefore awareness of solitary bees.



### 3.3 Introduction of managed honeybees

Honeybees can be introduced to an area as a quick way to increase pollination services for nearby cropland and for their products such as honey and wax. But the introduction of honeybees to any area of land important for wild pollinators needs to be carefully managed so as not to cause more harm than good. Honeybee hives need to be introduced in low-density and to ensure that the honeybees do not out compete the wild bees for resources and must be away from environmentally sensitive areas. In addition, it is important to provide floral resources where possible to support the large increase in bee numbers associated with a honeybee hive.

As such, we have introduced honeybee hives, as well as additional floral resources, in a handful of areas on our estate:

**Draycote** - Seven hives were introduced to the scrape meadow in 2017. This has been improved from grassland to a pollinator friendly meadow by the introduction of yellow rattle, a plant found in meadows, and subsequent seeding with a wildflower mix. There has been introduction of various other nectar sources around the site such as red and white campion, and garlic mustard on the edge of woodlands. Importantly, early flowering species such as snowdrops and daffodils have also been planted to provide support for the bees in Spring.

**Staunton Harold** - Hives were introduced in 2018 in the existing wildflower meadows. Additional nectar sources, again campion and garlic mustard were introduced and a wildflower turf was utilised.

**Tittesworth** - Two hives were introduced into a rough area of pasture that is tenanted out with the agreement of the farmer. The field provides plenty of nectar sources and there is an orchard within 50 meters of the hives. There are existing wildflower meadows within a kilometre of the hives. Additional snowdrops and daffodils have been planted.

### 3.4 Reducing the impact of capital delivery projects

**We will be working to ensure that any development on our sites has minimal impact on biodiversity, including for pollinators. This will be done through Biodiversity Net Gain commitments and a two-step strategy to reducing damage:**

On all capital projects that require a preliminary ecological appraisal, we will go beyond the statutory 10% additional biodiversity gain when we compensate for any biodiversity loss, instead targeting 15%. As well as this commitment, we will be ensuring that there are minimal negative impacts on pollinator habitat and we will work to include the provision of more habitat in a two-step process:

**1. Reducing impact** – we will work to avoid destroying or impacting areas of land that are particularly valuable to pollinators. This includes areas of species-rich grassland, hedgerows, and areas of land which may be important for nesting. Where areas must be impacted, we will work to restore them elsewhere in line with our biodiversity net gain commitments.

**2. Improving design** – pollinators can thrive in urban environments, so we will look to include features in our capital delivery projects which will positively impact pollinators. This might include adding green roofs to our developments or building flower beds rather than pouring concrete over land. Specially designed seed mixes, outlined in appendix 1, are now being included by capital delivery projects in their Environmental Design Manual, so that using them becomes part of the business-as-usual operations. In addition, there is large scope to include artificial nesting sites for solitary bees, especially in south-facing areas of land, whether that be solitary bee houses on our buildings or nest banks around them. There is also scope to include 'bee bricks' in any newly built walls.

Together, these commitments ensure that our building work has as little negative effect on biodiversity as possible and that where our projects do negatively impact biodiversity, we will make up for it on-site or elsewhere.





## 4. Boosting pollinators beyond our boundaries

Our own land is only part of the picture and working with nature means working with partners at a whole landscape scale, irrespective of ownership. Pollinators have the ability to travel for miles to find resources, so it's important they have plentiful resources across the landscape.

In return, the benefits that come with pollination will also be seen at a landscape level. We have three key routes for achieving impact for pollinators beyond our estate: **1) the Boost for Biodiversity small scale biodiversity grant scheme; 2) strategic partnerships for larger scale projects; and 3) our Farming for Water catchment management programme with farmers.** More detail about these programmes is given throughout our **Biodiversity Action Plan.**

### Linking up pollinator habitats across the landscape

Our approach to supporting pollinators across the wider landscape is being informed by publicly available data produced by a national B-line project run by Buglife, which has ambition for a UK-wide pollinator network. B-lines are a series of 'insect pathways' running through our countryside and towns, along which communities are restoring and creating a series of wildflower-rich habitat stepping-stones. They link existing wildlife areas together, creating a network that will weave across the British landscape. This will provide large areas of

new habitat benefiting pollinators such as bees and butterflies, and a range of other wildlife.

There have been number of funders and a collaborative effort to map the current B-lines across the UK. Severn Trent will be using this resource, and seeking support and advice from Buglife, to strategically influence where nature restoration on our land takes place. To do this, we have commissioned Ecosulis to create an interactive biodiversity strategy map for the Severn Trent region. It collates numerous layers including B-Lines to allow us to make sensible recommendations for biodiversity improvements. We will be able to use this map to see where best to create pollinator habitats so that they connect across our region, looking to improve the recently mapped B-Lines. This work will help us improve biodiversity on our own site, as well as improving connectivity across our region.

### Public engagement

Public engagement is especially important in pollinator and insect conservation, as insects are often misunderstood or are viewed negatively by public. We will work to engage local stakeholders with our pollinator strategy to ensure that the work is understood and to encourage best practice. In addition, we will take part in national pollinator events, such as Bee Needs Week (run by the Bumblebee Conservation Trust). This will involve engaging Severn Trent employees such as site managers and communicating participation on social platforms.

Public engagement is especially important in pollinator and insect conservation, as insects are often misunderstood or are viewed negatively by public.

Our strategic partnership with the Butterfly Conservation Trust will deliver an increase in biodiversity through creation or enhancement of habitats – the project runs over 3 years and is forecast to deliver 120.5ha by 31st March 2024. This project will enhance a series of sites and improve their connectivity across both the East and West Midlands, so inspiring the name 'Butterfly Mosaics'. The project will benefit eight rare and threatened butterfly species, three priority moths and many common species.

Butterfly Conservation will deliver a range of targeted habitat management activities across the Severn Trent region; these will increase, restore or enhance habitat for the project's target species and establish links within the landscape to facilitate species dispersal. The project focuses on creating and improving the breeding habitat needed by each species, allowing populations to recover and expand into new areas. Management techniques will include the creation of scrapes, scallops and butterfly banks and other habitat management and food provision elements.

### Case study

Butterfly mosaics with the Butterfly Conservation Trust







# Appendix 1

How we achieve rich Biodiverse Habitats through creating appropriate seed mixes for STEPS to achieve a biodiversity gain by creating appropriate grasslands that are Biodiverse Habitats (BAP)

The following grassland mixes have been identified as the most appropriate for the geology, soil types, landscape and management proposed. The aim is to create grassland types which should in the long term acquire a level of species richness, measured by the number of different plant species present, which would normally be found as a community at the location employed. The groupings listed here reflect important nature conservation grasslands which have a high "conservation value" and are known to form a plant community type in the locations identified, lowlands/uplands/flood plains and on the major soil groups identified.

The lists have been split into two sections: grasses and herbs. The herbs section also cover the clovers in any mix. Within each category they have been split again between "should have" and "could have". This second split is to allow for seed merchant variability and also seed availability.

**It is envisaged that the "could have" part of the mix ought to contain at least 90% of the species listed.**

For the species listed as "could have" this is to allow for individual additions by agreement holders and advisors partly to make up for any, "should have" which are missing from the "should have" list and to allow for some variation as would normally occur in these types of vegetation community naturally. In addition, to aid guidance on any mix the key species in the mix are in bold and they are the ones which are the key ones for that community type.



*"Severn Trent Water are setting a great example of what can be done for pollinators through their ambitious Pollinator Strategy. During a biodiversity crisis, it is more important than ever that influential partners such as Severn Trent Water play their part. Buglife is thrilled to see their commitment to return wildflowers to the countryside and restore sustainable populations of pollinators along B-Lines."*

Jamie Robins, Programmes Manager at Buglife.



## 1.1 Generic seed mixes: Natural grasslands (Mesotrophic)

Hay meadows **MG5 Black Knapweed Crested Dogtail Lowland Hay Meadow** (*Centaureo-Cynosuretum Cristati* grassland) a major BAP habitat type.

This will be anywhere in the lowlands which does not have chalk/limestone soils (calcareous) or sandstone (acid soils) and will be associated with mostly drift geology – clay lands.

This grassland type is usually managed as a hay meadow, cut in summer and aftermath grazed in the autumn, with cattle preferred. This mix will work for both hay cutting regimes as well as grazed only lowland grasslands.



### Grasses **should have**

Festuca Rubra	Red Fescue
<b>Cynosurus Cristatus</b>	<b>Crested Dogtail</b>
Agrostis Capillaris	Common Bent
<b>Anthoxanthum Odoratum</b>	<b>Sweet Vernal Grass</b>
Dactylis Glomerata	Cocksfoot
Festuca Pratensis	Meadow Fescue
Phleum Pratense	Timothy
Poa Trivialis	Rough Stalked Meadow Grass

### Grasses **could have**

Trisetum Flavescens	Yellow Oat Grass
<b>Briza Media</b>	<b>Quaking Grass</b>
Poa Pratensis	Smooth Stalked Meadow Grass
Alopecurus Pratensis	Meadow Foxtail

### Herbs **should have**

Lotus Corniculatus	Birds Foot Trefoil
Plantago Lanceolata	Ribwort Plantain
Trifolium Pratense	Red Clover
<b>Centaurea Nigra</b>	<b>Black Knapweed</b>
<b>Leucanthemum Vulgare</b>	<b>Oxeye Daisy</b>
<b>Rhinanthus Minor</b>	<b>Yellow Rattle</b>
Lathyrus Pratensis	Meadow Vetchling
Knautia Arvensis	Field Scabious
Rannunculus Acris	Meadow Buttercup
Hypochoeris Radicata	Cats Ear

### Herbs **could have**

Prunella Vulgaris	Self Heal
Leontodon Autumnalis	Autumn Hawkbit
Succisa Pratensis	Devils-Bit Scabious
Pimpinella Saxifraga	Burnet-Saxifrage
Stachys Betonica	Betony
<b>Conopodium Majus</b>	<b>Pignut</b>
Rumex Acetosa	Common Sorrel
Achillea Millefolium	Yarrow
Leontodon Hispidus	Rough Hawkbit
Sanguisorba Minor	Great Burnet
<b>Ranunculus Bulbosus</b>	<b>Bulbous Buttercup</b>
Primula Veris	Cowslip

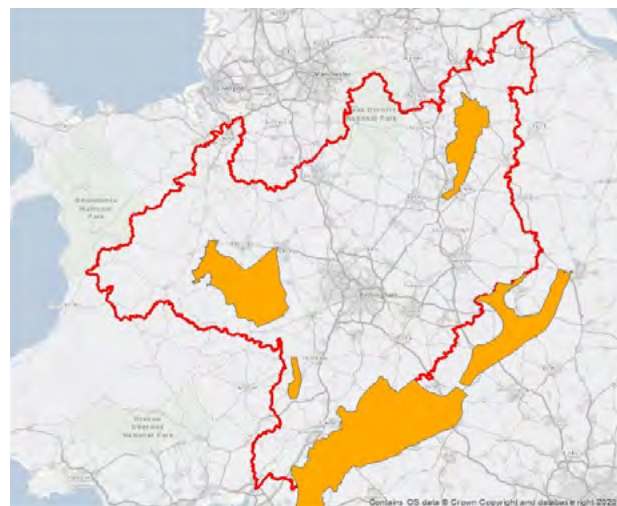




## Calcareous grasslands (Calcicoles)

CG2 Festuca Ovina-Avenula Pratensis grassland - a major BAP habitat type.

These grasslands are associated with the escarpment limestone/chalk uplands and are generally associated with key sheep grazing areas. They historically were part of the sheep/corn system of farming which formed the backbone of the midlands. This grassland type is usually grazed.



**Key areas are:** Cotswolds, Malvern Hills, Northamptonshire Wolds; Wenlock Edge.

### Grasses **should** have

Festuca Ovina	Sheeps Fescue
<b>Helictotrichon (Avenula) Pratensis</b>	<b>Meadow Oat Grass</b>
Dactylis Glomerata	Cocksfoot
<b>Helictotrichon (Avenula) Pubescens</b>	<b>Downy Oat Grass</b>

### Grasses **could** have

Briza Media	Quaking Oat Grass
Koeleria Macrantha	Crested Hair Grass
Trisetum Flavescens	Yellow Oatgrass
Phleum Pratense	Timothy
Pratense	

### Herbs **should** have

Sanguisorba minor	Salad Burnet
Plantago Lanceolata	Ribwort Plantain
<b>Lotus Corniculatus</b>	<b>Birds Foot Trefoil</b>
Leontodon Hispidus	Rough Hawkbit
Hieracium Pilosella	Mouse-ear Hawkweed
<b>Scabiosa Columbaria</b>	<b>Small Scabious</b>
Trifolium Pratense	Red Clover
<b>Succisa Pratensis</b>	<b>Devil's-Bit Scabious</b>
Centaurea Nigra Agg.	Black Knapweed
Medicago Lupulina	Black Medick
<b>Hippocrepis Comosa</b>	<b>Horseshoe Vetch*</b>
<b>Helianthemum Nummularium</b>	<b>Common Rock-Rose*</b>

\*Key food plants for butterfly species

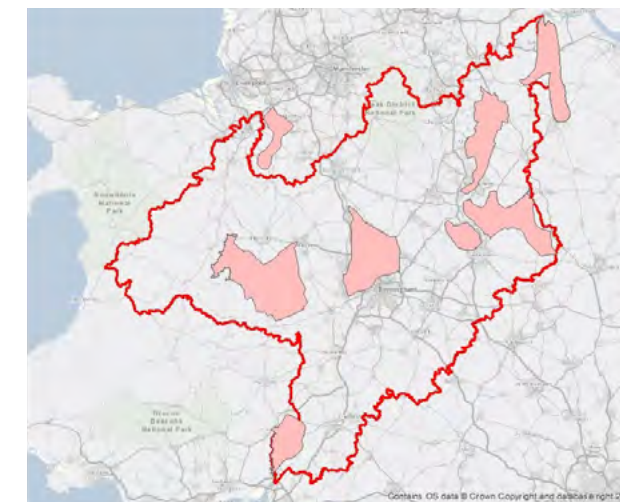
### Herbs **could** have

Thymus Praecox	Wild Thyme
Prunella Vulgaris	Common Self-Heal
Plantago Media	Greater Plantain
Euphrasia Officinalis Agg.	Eyebright
<b>Ranunculus Bulbosus</b>	<b>Bulbus Buttercup</b>
Pimpinella Saxifraga	Burnet-Saxifrage
Galium Verum	Lady's Bedstraw
Linum Catharticum	Fairy Flax,
Gentianella Amarella	Autumn Gentian
Filipendula Vulgaris	Dropwort
Primula Veris	Common Cowslip

## Acid grasslands (Calcifuges)

U1 Festuca Ovina-Agrostis Capillaris-Rumex Acetosella grassland - a major BAP habitat type.

This grassland type is highly variable and needs to be tailored to the acid substrate. Further ecological input is required for this option from [ecologymatters@severntrent.co.uk](mailto:ecologymatters@severntrent.co.uk) This grassland type is usually grazed.



**Key areas are:** Sherwood Forest, Cannock Chase, Wyre Forest, Shropshire Sandstone Hills.

### Grasses **should** have

<b>Festuca Ovina</b>	<b>Sheep Fescue</b>
Agrostis Capillaris	Common Bent
Aira Praecox	Early Hair Grass
Anthoxanthum Odoratum	Sweet Vernal Grass
Koeleria Macrantha	Crested Hair-grass

### Herbs **should** have

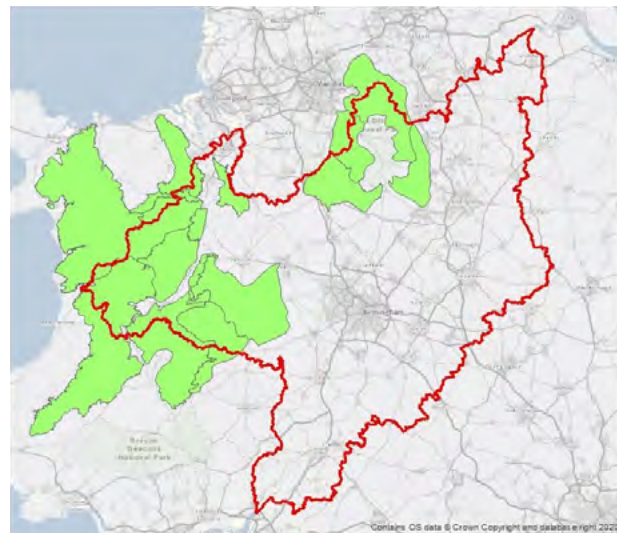
Rumex Acetosella	Sheep Sorrel
Cerastium Fontanum	Mouse Eared Chickweed
Lotus Corniculatus	Birds Foot Trefoil
Plantago Lanceolata	Ribwort Plantain
<b>Galium Saxatile</b>	<b>Heath Bedstraw</b>
Hieracium Pilosella	Mouse Eared Hawkweed
<b>Thymus Praecox</b>	<b>Wild Thyme</b>
<b>Galium Verum</b>	<b>Lady's Bedstraw</b>





## Upland areas

Upland areas should be considered to be land 200m above sea level and where climate influences the number of rain days per year (from around 180/day/yr-1 plus). The growth of any grassland is not likely to start until April and to be short and will cease with the first frosts in late October. This can be summed up as cold, windy, cloudy and wet. These are the main areas where these upland mixes should be used. If the land is dominated by Heather Erica sp. or Upland Heath then these mixes are not appropriate, further advice should be sought from [ecologymatters@severntrent.co.uk](mailto:ecologymatters@severntrent.co.uk) for an appropriate mix.

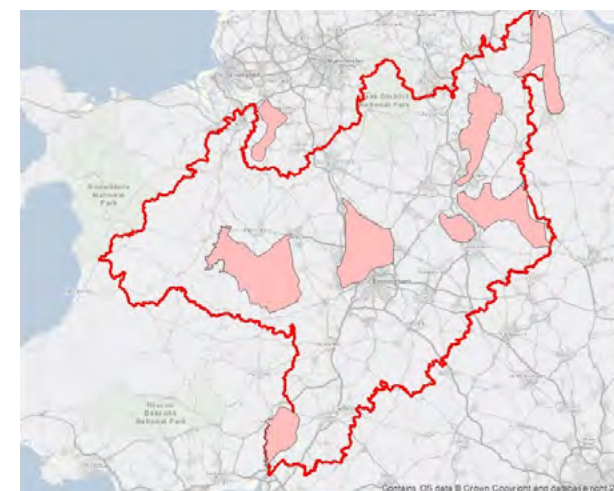
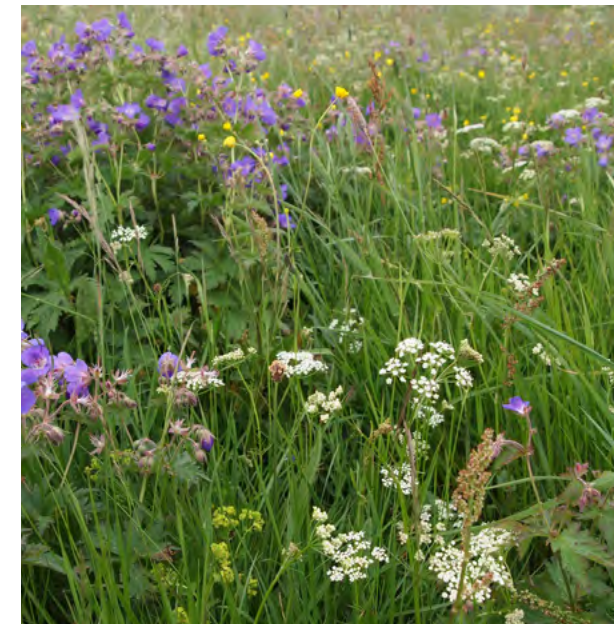


**Key areas are:** Welsh uplands with the Shropshire border uplands, Derbyshire Peaks and Staffordshire moorlands.

## Upland Hay meadows

MG3 Sweet Vernal Grass-Woody Cranesbill Upland Hay Meadow (**Anthoxanthum Odoratum-Geranium Sylvaticum grassland**) a major BAP habitat type.

This grassland type is usually managed as a hay meadow, cut in summer and aftermath grazed in the autumn, with cattle preferred.



**Key areas are:** Sherwood Forest, Cannock Chase, Wyre Forest, Shropshire Sandstone Hills.

### Grasses should have

Agrostis Capillaris	Common Bent
<b>Anthoxanthum Odoratum</b>	<b>Sweet Vernal Grass</b>
Festuca Rubra	Red Fescue
Cynosurus Cristatus	Crested Dogstail
Poa Trivialis	Rough Stalked Meadow Grass

### Grasses could have

Dactylis Glomerata	Cocksfoot
Trisetum Flavescens	Yellow Oat Grass
Helictotrichon (Avenula) Pubescens	Downy Oat Grass
<b>Briza Media</b>	<b>Quaking Grass</b>
Phleum Pratense	Timothy

### Herbs should have

Plantago Lanceolata	Ribwort Plantain
Rumex Acetosa	Common Sorrel
Ranunculus Acris	Meadow Buttercup
<b>Rhinanthus Minor</b>	<b>Yellow Rattle</b>
<b>Centaurea Nigra</b>	<b>Black Knapweed</b>
Trifolium Pratense	Red Clover
Lotus Corniculatus	Birds Foot Trefoil

### Herbs could have

<b>Conopodium Majus</b>	<b>Pignut</b>
Sanguisorba Officinalis	Great Burnet
Vicia Sativa	Common Vetch
<b>Ranunculus Bulbosus</b>	<b>Bulbous Buttercup</b>
Leontodon Hispidus	Lesser Hawkbit
Hypochoeris Radicata	Common Cats Ear
<b>Geranium Sylvaticum</b>	<b>Woody Cranesbill</b>
Thymus Praecox	Wild Thyme
Anemone Nemorosa	Wood Anemone
<b>Achillea Millefolium</b>	<b>Yarrow</b>
Potentilla Erecta	Tormentil
<b>Trollius Europaeus</b>	<b>globe flower</b>
Leontodon Autumnalis	Autumn Hawkbit
Prunella Vulgaris	Self-Heal
Ajuga Reptans	Bugle
Trifolium Medium	Zig Zag Clover





## Upland Calcareous grasslands

CG10 Festuca Ovina-Agrostis Capillaris-Thymus Praecox grassland a major BAP habitat type.

This grassland type is usually grazed.



Credit: ©Natural England/Jenny Wheeldon.

### Grasses **should** have

Festuca Ovina	Sheep Fescue
Agrostis Capillaris	Common Bent
Anthoxanthum Odoratum	Sweet Vernal Grass

### Grasses **could** have

Festuca Rubra Agg.	Red Fescue
Agrostis Canina Sens. Lat.	Velvet Bent
Danthonia Decumbens	Heath Grass

### Herbs **should** have

<b>Thymus Praecox</b>	<b>Wild Thyme</b>
<b>Potentilla Erecta</b>	<b>Tormentil</b>
Plantago Lanceolata	Ribwort Plantain
Prunella Vulgaris	Common Self-Heal
Achillea Millefolium	Yarrow
Ranunculus Acris	Meadow Buttercup
<b>Lotus Corniculatus</b>	<b>Birds Foot Trefoil</b>
<b>Viola Riviniana</b>	<b>Common Dog-Violet*</b>
<b>Hippocrepis Comosa</b>	<b>Horseshoe Vetch*</b>

\*Key food plants for butterfly species.

### Herbs **could** have

Campanula Rotundifolia	Hairbell
Galium Saxatile	Heath Bedstraw
Veronica Officinalis	Heath Speedwell
Cerastium Fontanum	Mouse-Ear Chickweed
Linum Catharticum	Fairy Flax
<b>Succisa Pratensis</b>	<b>Devil's-Bit Scabious</b>
<b>Alchemilla Glabra</b>	<b>Lady's Mantle</b>
Geum Rivale	Water Avens
Saxifraga Aizoides	Yellow Saxifrage
Euphrasia Officinalis Agg.	Eyebright

## Upland Acid grassland

U2 Deschampsia Flexuosa grassland.

This grassland type is usually grazed.



Credit: © Natural England.

### Grasses **should** have

**Avenella (Deschampsia) Flexuosa** **Wavy hair grass**

Festuca Ovina	Sheep Fescue
Agrostis Capillaris	Common Bent
Festuca Rubra Agg.	Red Fescue

### Grasses **could** have

Agrostis Vinealis	Brown Bent
Anthoxanthum Odoratum	Sweet Vernal Grass

### Herbs **should** have

<b>Galium Saxatile</b>	<b>Heath Bedstraw</b>
<b>Potentilla Erecta</b>	<b>Tormentil</b>
Rumex Acetosella	Common Sorrel
Rumex Acetosa	Sheep Sorrel
Trifolium Repens	White Clover

### Herbs **could** have

These species can be added if a transition to heathland is required but the area can only be grazed. Further advice from [ecologymatters@severntrent.co.uk](mailto:ecologymatters@severntrent.co.uk) should be sought if these species are to be used:

Erica species	
Calluna Vulgaris	Ling Heather
Erica Cinerea	Bell Heather
Vaccinium Myrtillus	Bilberry
Empetrum Nigrum Subsp. Nigrum	Crowberry





## Flood plain grasslands

These grasslands are influenced by the level of flooding and the length of time that the land is underwater. Therefore, choosing the right mix may require further ecology input. The general sequence of plant community is from drier MG4 →MG15 to wetter due to long term inundation →MG8→MG13. In some circumstances due to prolonged inundation then the community type can morph into a fen community S28 Phalaris Arundinacea Tall-Herb Fen, or an Upper Salt Marsh community SM28 Elymus Repens Salt-Marsh community. These latter two communities will develop overtime in areas of prolong inundation and its not proposed that these should be restored. Further advice from [ecologymatters@severntrent.co.uk](mailto:ecologymatters@severntrent.co.uk) should be sought before these options are used.

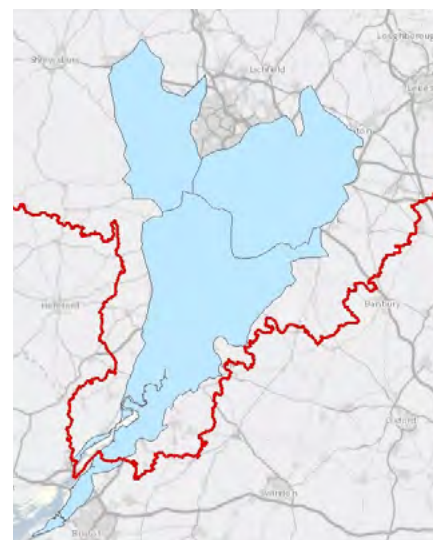
However, if the grassland is primarily being created for breeding birds this can be achieved using either, MG8 or MG13. Grasslands for breeding birds are a combination of wet features such as, scrapes, rhymes and swales and a mosaic sward structure which has a combination of sward heights and tussocks. To be successful for bird breeding then the grassland must have both the physical features and the sward structure. Normally some of the tussocks would be made up of Juncus species but these will ingress via natural process so its not proposed that these species are sown.

**Northern - The Trent Valley flood plain.**  
In this area the main grasslands should be either MG15, MG8 or MG13.



Key areas: Trent flood plains.

**Southern - The Severn Valley flood plains and its tributaries.** In this area the main grasslands should be MG4, MG15 or MG13.



Key areas: Severn Vale and Avon floodplains.

## MG4 Meadow Foxtail

Greater Burnet River Meadow Alopecurus Pratensis-Sanguisorba Officinalis grassland is a major BAP habitat type.

This grassland type is usually managed as a hay meadow, cut in summer and aftermath grazed in the autumn, with cattle preferred until flooding occurs.



Credit: ©Natural England/Peter Rowarth

### Grasses could have

Phleum Pratense Pratense	Timothy
Briza Media	Quaking Grass
Poa Trivialis	Rough Stalked Meadow Grass
Poa Pratensis	Smooth Stalked Meadow Grass

### Herbs should have

<b>Sanguisorba Officinalis</b>	<b>Greater Burnet</b>
Plantago Lanceolata	Ribwort Plantain
Ranunculus Acris	Meadow Buttercup
Rumex Acetosa	Common Sorrel
Trifolium Pratense	Red Clover
Lathyrus Pratensis	Meadow Vetch
<b>Rhinanthus Minor</b>	<b>Yellow Rattle</b>
Leucanthemum Vulgare	Ox-Eye Daisy
Ranunculus Bulbosus	Bulbous Buttercup

### Herbs could have

<b>Filipendula Ulmaria</b>	<b>Meadowsweet</b>
Silaum Silaus	Pepper-Saxifrage
Veronica Serpyllifolia	Thyme-Leaved Speedwell
<b>Centaurea Nigra</b>	<b>Black Knapweed</b>
Lotus Corniculatus	Birds Foot Trefoil
Vicia Cracca	Tufted Vetch
<b>Succisa Pratensis</b>	<b>Devils-Bit Scabious</b>
Leontodon Autumnalis	Autumn Hawkbit
Cardamine Pratensis	Cuckoo-Flower
Leontodon Hispidus	Rough Stalked Hawkbit
Primula Veris	Cowslip
Prunella Vulgaris	Self-heal
Trifolium Dubium	Lesser Trefoil
Achillea Millefolium	Yarrow
Thalictrum Flavum	Common Meadow-Rue
Serratula Tinctoria	Saw-Wort
Stachys Betonica	Betony
Potentilla Anglica	Trailing Tormentil
Hypochoeris Radicata	Cats-Ear
Galium Verum	Lady's Bedstraw
<b>Caltha Palustris</b>	<b>Kingcup</b>
Vicia Sepium	Bush Vetch

### Grasses should have

<b>Alopecurus Pratensis</b>	<b>Meadow Foxtail</b>
Festuca Rubra	Red Fescue
Cynosurus Cristatus	Crested Dogstail
Anthoxanthum Odoratum	Sweet Vernal Grass
Trisetum Flavescens	Yellow Oat Grass
Festuca Pratensis	Meadow Fescue
Agrostis Capillaris	Common Bent
Festuca Arundinacea	Tall Fescue





## River flood plain grassland

MG15 Alopecurus Pratensis-Poa Trivialis Cardamine Pratensis grassland river flood plain grassland a major BAP habitat type.

This grassland type is usually managed as a hay meadow, cut in summer and aftermath grazed in the autumn, with cattle preferred until flooding occurs as the grazing animal.



Credit: ©Natural England/Jenny Wheeldon.

### Grasses should have

Poa Trivialis	Rough Stalked Meadow Grass
Cynosurus Cristatus	Crested Dogstail
<b>Alopecurus Pratensis</b>	<b>Meadow Foxtail</b>
Festuca Rubra	Red Fescue
Anthoxanthum Odoratum	Sweet Vernal Grass
<b>Festuca Pratensis</b>	<b>Meadow Fescue</b>
Agrostis Capillaris	Common Bent
Festuca Arundinacea	Tall Fescue

### Grasses could have

Bromus Commutatus	Meadow Brome
Phalaris Arundinacea	Reed Canary Grass
Agrostis Canina	Velvet Bent
Alopecurus Geniculatus	Marsh Foxtail
<b>Hordeum Secalinum</b>	<b>Meadow Barley</b>
Agrostis Stolonifera	Creeping Bent
Glyceria Fluitans	Floating Sweet-Grass

### Herbs should have

<b>Cardamine Pratensis</b>	<b>Cuckoo Flower</b>
<b>Ranunculus Acris</b>	<b>Meadow Buttercup</b>
Rumex Acetosa	Common Sorrel
<b>Filipendula Ulmaria</b>	<b>Meadowsweet</b>
Plantago Lanceolata	Ribwort Plantain
Trifolium Pratense	Red Clover
Leontodon Autumnalis	Autumn Hawkbit
Lathyrus Pratensis	Meadow Vetchling
<b>Rhinanthus Minor</b>	<b>Yellow Rattle</b>
Achillea Ptarmica	Sneezewort
Vicia Cracca	Tufted Vetch
<b>Sanguisorba Officinalis</b>	<b>Great Burnet</b>

### Herbs could have

Senecio Aquaticus	Marsh Ragwort
Silaum Silaus	Pepper-Saxifrage
Centaurea Nigra	Black Knapweed
<b>Oenanthe Silaifolia</b>	<b>Water Dropworts</b>
Caltha Palustris	Kingcup
Polygonum Amphibium	Water Knotweed
Galium Palustre	Marsh-bedstraw
Myosotis Laxa Caespitosa	Tufted Forget-Me-Not
Trifolium Dubium	Lesser Trefoil

## Foxtail Splash grassland

MG13 Agrostis Stolonifera-Alopecurus Geniculatus Inundation grassland (Foxtail Splash) a major BAP habitat type.

This grassland type is usually managed as a hay meadow, cut in summer and aftermath grazed in the autumn, with cattle preferred as the main grazing animal until flooding occurs. This mix can be used to create grassland for breeding waders too, but the grassland will be managed by grazing only and overtime Juncus species will become present. The land should be managed as a grassland with splash pools present during the key months of May to June.



Credit: ©Natural England/Peter Roworth.

### Grasses should have

Poa Trivialis	Rough Stalked Meadow Grass
Cynosurus Cristatus	Crested Dogstail
<b>Alopecurus Pratensis</b>	<b>Meadow Foxtail</b>
Festuca Rubra	Red Fescue
Anthoxanthum Odoratum	Sweet Vernal Grass
Festuca Pratensis	Meadow Fescue
Agrostis Capillaris	Common Bent
Festuca Arundinacea	Tall Fescue
Alopecurus Geniculatus	Marsh Foxtail

### Grasses could have

<b>Bromus Commutatus</b>	<b>Meadow Brome</b>
Phalaris Arundinacea	Reed Canary Grass
Agrostis Stolonifera	Creeping Bent
Glyceria Fluitans	Floating Sweet-Grass

### Herbs should have

<b>Cardamine Pratensis</b>	<b>Cuckoo Flower</b>
Potentilla Anserina	Silverweed
<b>Galium Palustre</b>	<b>Marsh-Bedstraw</b>
<b>Ranunculus Flammula</b>	<b>Lesser Spearwort</b>
<b>Caltha Palustris</b>	<b>Kingcup</b>
<b>Ranunculus Acris</b>	<b>Meadow Buttercup</b>
<b>Trifolium Pratense</b>	<b>Red Clover</b>

### Herbs could have

Leontodon Autumnalis	Autumn Hawkbit
<b>Oenanthe Fistulosa</b>	<b>Water Dropworts</b>
Myosotis Laxa Caespitosa	Tufted Forget-Me-Not
Rumex Acetosa	Common Sorrel
Polygonum Amphibium	Water Knotweed
Senecio Aquaticus	Marsh Ragwort
<b>Lychnis Flos-cuculi</b>	<b>Ragged-Robin</b>
<b>Lotus Uliginosus</b>	<b>Greater Birds Foot Trefoil</b>





## MG8 Cynosurus cristatus-Caltha Palustris grassland-BAP habitat

This grassland type is usually managed as a hay meadow, cut in summer and aftermath grazed in the autumn, with cattle preferred until flooding occurs. This mix can be used to create grassland for breeding waders too, but the grassland will be managed by grazing only and overtime Juncus species will become present. The land should be managed as a grassland with splash pools present during the key months of May to June.

This community is also found in the uplands in meadows in areas where water comes to the surface and forms a flush. Therefore, this option can be used also in upland areas to create a mosaic grassland type if flushes are a feature of the landscape.



Credit: ©Natural England/Peter Wakely.

### Grasses should have

Anthoxanthum Odoratum	Sweet Vernal Grass
Festuca Rubra	Red Fesuce
<b>Cynosurus Cristatus</b>	<b>Crested Dogstail</b>
Phleum Pratense	Timothy
Agrostis Canina	Velvet Bent
Bromus Racemosus	Hairy Brome

### Grasses could have

Agrostis Stolonifera	Creeping Bent
Briza Media	Quaking Grass
Festuca Pratensis	Tall Fescue
Agrostis Capillaris	Common Bent
Dactylis Glomerata	Cocksfoot

### Herbs should have

Ranunculus Acris	Meadow Buttercup
<b>Filipendula Ulmaria</b>	<b>Meadowsweet</b>
Plantago Lanceolata	Ribwort Plantain
Sanguisorba Officinalis	Great Burnet
Succisa Pratensis	Devil's-Bit Scabious
Prunella Vulgaris	Common Self-Heal
Vicia Cracca	Tufted Vetch
Trifolium Dubium	Lesser Hop Trefoil

### Herbs could have

Lotus Corniculatus	Birds Foot Trefoil
Lychnis Flos-cuculi	Ragged-Robin
<b>Lotus Uliginosus</b>	<b>Greater Birds Foot Trefoil</b>
<b>Ranunculus Flammula</b>	<b>Lesser Spearwort</b>
Galium Palustre	Heath Bedstraw
Leontodon Hispidus	Rough Hawkbit
Rumex Acetosa	Common Sorrel
Rhinanthus Minor	Yellow Rattle
Caltha Palustris	Kingcup
<b>Cardamine Pratensis</b>	<b>Cuckoo Flower</b>
Leontodon Autumnalis	Autumn Hawkbit
Lathyrus Pratensis	Common Vetch
Mentha Aquatica	Water Mint

## 1.2 Generic principles for grassland creation

- Remove any areas of soil compaction prior to establishment. Do not disturb subsoil areas on sites of archaeological interest.
- In year 1, establish a grassy sward by sowing the following seed mix listed above as agreed with your Severn Trent Advisor. The grassy sward should be established by 1 October.
- From year 2 onwards, manage the sward by grazing and/or cutting to achieve a sward height of between 5cm and 15cm during April and May (unless the land has been shut for hay) and between 2.5cm and 5cm in November.

To measure the effectiveness of the creation:

- By year 2, at least 3 moderate value indicator species, from the mix agreed, should be occasional.
- By year 5, at least 2 moderate value indicator species from the mix agreed should be frequent and 2 high value indicator species occasional.
- By year 10, at least 1 high value indicator species from the mix agreed should be frequent and 1 occasional, with in addition at least 2 moderate value indicator species should be frequent and 3 should be occasional in the sward.





Healthy grasslands should be species rich, providing a range of resources for pollinators, and therefore all of these improvements should benefit pollinator populations.



Pollination is vital for a healthy ecosystem, and pollinators support essential activities such as crop production, contributing an estimated

**£400m**

per year to the UK economy\*.

\*Pollination services in the UK - University of Reading.

### Get in touch

[ecologymatters@severntrent.co.uk](mailto:ecologymatters@severntrent.co.uk)

Severn Trent has implemented a Biodiversity Monitoring Programme on sites where we are creating or enhancing meadow grasslands or managing woodlands. By monitoring the abundance of key groups of animals and plants, we can evidence tangible outcomes of the improvement works.



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