

Wye Valley
National Landscape

Bumblebee Assemblage

Species Action Plan 2022 – 2027



To Accompany the
Wye Valley National Landscape Nature Recovery Plan



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Wye Valley
National Landscape

Table of Contents

List of Figures & Maps

1. Background

2. Introduction

3. Current Status

3.1 Ecology and habitat requirements

3.2 Population and distribution

3.3 Legislation

3.4 Summary of important sites

4. Current factors affecting the species

4.1 Threats

4.2 Barriers to conservation

5. Current Initiatives

5.1 Local protection, site management and programmes of action

5.2 Survey, research and monitoring

6. Conservation Visions

7. Conservation Actions

8. Role of the Wye Valley National Landscape Team

9. Marking Progress

10. References and further information

List of Figures & Maps

Figure 1: Identifying the Shrill carder bee (Source – Bumblebee Conservation Trust, 2019).

Figure 2: Brown-banded Carder bee (left) and the Shrill Carder bee (right) on a common comfrey (Source – Ciaran Clark).

Figure 3: Red-Shanked Carder bee (Source – Back from the Brink, 2024).

Figure 4: Red-Shanked Carder Bee nest (Source – Back from the Brink, 2024).

Figure 5: Red Clover (*Trifolium pratense*) and Red Bartsia (*Odontites verna*) are important foodplants and flower into late summer.

Figure 6: Shrill carder bee records 2000-present (red), and pre-2000 (yellow) (Source – Bumblebee Conservation Trusts, 2024).

1. Background

In 2019, set against a backdrop of unprecedented concern for the future of the natural world, the National Association for Areas of Outstanding Natural Beauty (NAAONB) set in motion plans to significantly increase the scale and pace of nature conservation activity in Areas of Outstanding Natural Beauty (AONB's). The Wye Valley AONB Partnership, along with AONB's across the UK, signed up to the Colchester Declaration. This is an ambitious plan to recover nature in and beyond protected landscapes, build climate resilience and enhance engagement with people. Rebranding has since taken place and AONBs are now known as National Landscapes.

As part of this effort, each National Landscape has committed to adopting an IUCN threatened, or locally threatened, species and preparing and delivering a Species Action Plan, in the hope that by 2030 at least 30 species relevant to AONB's can be removed from the threatened list (NAAONB, 2019). The Wye Valley National Landscape has committed to adopting 5 locally significant species, each of which represent one of the AONB's special qualities, and/or indicate the health of a well-connected landscape. A bumblebee assemblage has been chosen to encourage the sustainable management of species-rich and un/semi improved grasslands to support these species and increase the diversity within our grassland areas. Being habitat focused, our bumble assemblage encompasses all bumblebees, but with a particular interest in locally distinctive and rare bees including the Shrill Carder Bee, Brown-banded Carder Bee and the Red-Shanked Carder Bee.

2. Introduction

The Shrill carder bee is a distinctive bee which can be identified by its pale grey-yellow colouring, black band of hair between the wings and reddish-orange tail (as shown in Figure 1). It also has a noticeably high-pitched buzz. Their size ranges between 10-18mm; the queens are approximately 17mm long, whereas workers and males are generally much smaller. The distribution of Shrill carder bees has declined dramatically in the last century, making it one of the UK's rarest bumblebees. The Shrill carder bee is now only found in seven areas in southern England and Wales. These fragmented populations are found in Kent, Essex, Somerset, Wiltshire, Gwent, Glamorgan and Pembrokeshire. It is a priority species for conservation in England and Wales. The principal causes of decline are the loss of flower-rich meadows and the intensification of farming and grazing practices.

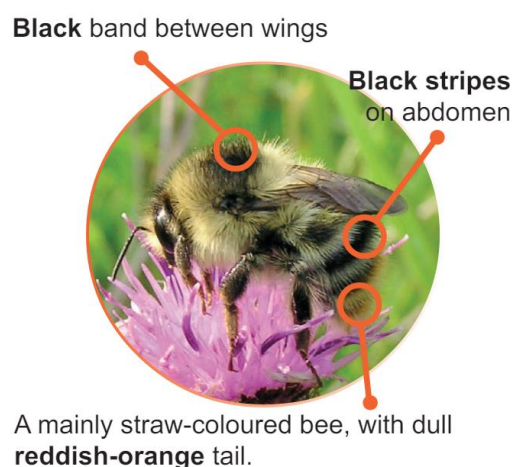


Figure 1: Identifying the Shrill carder bee (Source – Bumblebee Conservation Trust, 2019)

The Brown-banded Carder bee (*Bombus humilis*) has ginger hair on top of the thorax with paler yellow hair on the sides, under the wing bases. The hair on the abdomen is ginger-yellow, often (especially in queens) with a ginger band on the second abdominal section. There is also a scattering of black hairs on the thorax around the wing bases, but none on the abdomen. This species has a long tongue, and it often feeds on red clover and vetches. It nests on the surface of the ground amongst long grass or mossy vegetation (Bumblebee Conservation Trust, 2024).



Figure 2: Brown-banded Carder bee (left) and the Shril Carder bee (right) on a common comfrey (Source – Ciaran Clark)

The Red-Shanked Carder bee (*Bombus ruderarius*) is predominantly black with a red tail, very similar in appearance to the more common Red-tailed Bumblebee. However, the Red-Shanked Carder is smaller, rounder and females have red hairs fringing the pollen baskets on their hind legs. Unlike the females, males have two dusky straw-coloured bands on the thorax. In common with other ‘carder’ bee species the Red-Shanked Carder bee nests at ground-level, frequently in tall tussocky grass and sometimes in old mouse or vole nests, and is strongly associated with large and open areas of unimproved grasslands (Back from the Brink, 2024).



Figure 3: Red-Shanked Carder bee (Source – Back from the Brink, 2024)



Figure 4: Red-Shanked Carder Bee nest (Source – Back from the Brink, 2024)

3. Current Status

3.1 Ecology and habitat requirements

The Shrill, Brown-Banded and Red-Shanked Carder bees are late emerging species, as queens do not come out of hibernation until around May. Queens will feed on nectar and then begin to search for a suitable nest site. Nests are usually built on the ground, or just below the surface, in thick vegetation such as tall or tussocky grassland. These carder bee queens produce relatively small colonies compared to other bumblebees, with 50-200 workers in a mature nest. Workers, seen from around June onwards, collect nectar and pollen to support the nest. Later in the cycle, the queen switches from producing workers to rearing males and daughter queens, which emerge around August. After mating, daughter queens find suitable hibernation sites and will not emerge again until May the following year. Once the new queens have been produced, the rest of the colony, including the old queen, begin to die.

As these carder bees are late emerging species, it is crucial to provide forage into late September to ensure new queens are reared. Late cut meadows, field edges, hedgerow margins, sea walls and ditches can help provide this. (Bumblebee Conservation Trust, 2019).

These carder bees are long-tongued bumblebees and prefer plants with long tubular flowers. Their favourite forage plants include those that are rich in nectar and pollen including white dead-nettle and legumes such as red clover, and birds-foot trefoil. Late flowering species include red bartsia, common knapweed and scabious. 'Weed' species such as ragwort and thistles can also be important forage resources.

While there is significant overlap, each species may show particular preferences depending on the availability of local flora and habitat conditions.



Figure 5: Red Clover (*Trifolium pratense*) and Red Bartsia (*Odontites verna*) are important foodplants and flower into late summer.

Research suggests that these carder bees are doorstep foragers with a small foraging range (on average). They require open, extensive flower rich habitats close to undisturbed nesting habitat. These bees tend to be concentrated in one patch of flowers, meaning that they are particularly susceptible if there is a sudden cut.

The Shrill, Brown-banded and Red-Shanked Carder bee species all need large, well-connected areas of flower-rich habitat in order to thrive, with forage available right through the flight season, from March until October.

3.2 Population and distribution

The Shrill Carder bee occupies varied habitats such as the dry grasslands of Salisbury Plain and Castlemartin Ranges, coastal and brownfield sites in the Thames Gateway and wet grazing marshes of the Somerset and Gwent Levels. The current distribution of the Shrill carder bee in the UK is restricted to a handful of populations in the Somerset Levels, Gwent Levels and Pembrokeshire, and along the Glamorgan coast and Thames corridor (The Wildlife Trusts, 2024).

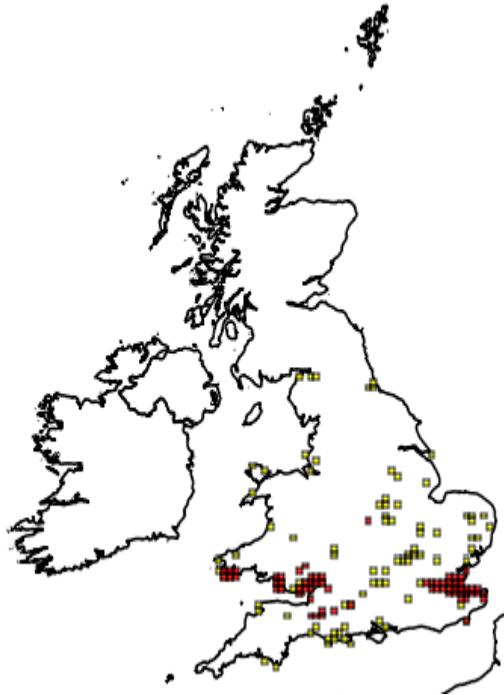


Figure 6: Shril carder bee records 2000-present (red), and pre-2000 (yellow) (Source – Bumblebee Conservation Trusts, 2024)

Following a review of the NBN Atlas data, it was indicated that there are no records of the Shril Carder Bee within the Wye Valley National Landscape; however, there are 14 records within 5km of the Wye Valley National Landscape boundary near Chepstow. Furthermore, there are no NBN Atlas records of the Red-Shanked Carder within the Wye Valley National Landscape (with the nearest approximately 4 miles west of Monmouth), and only one record of the Brown-banded Carder near St Briavels. With these species being found so close, habitat improvements within the Wye Valley National Landscape will not only create habitat for more common bumblebee species, but also increase the opportunity for population expansion of these three bee species into the throughout the National Landscape.

3.3 Legislation

The Shril, Brown-banded, and Red-Shanked Carder bees are all recognised as Priority Species under the UK Biodiversity Action Plan (UK BAP), and experiencing various degrees of rarity and threat.

The Shril carder bee is one of the rarest bumblebees in the UK and is the rarest of the three species. It is very scarce, found only in a few scattered, isolated populations in England and Wales.

All three species are protected under the Wildlife and Countryside Act 1981, Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, and Section 7 of the Environment (Wales) Act 2016. This is primarily through habitat protection and the prohibition of activities that can harm these species.

3.4 Summary of important sites

The Newport Wetlands National Nature Reserve, located within the Gwent Levels, features a rich array of low-lying habitats, including wet grasslands, reedbeds, saltmarshes, and saline lagoons. This reserve is a stronghold for these vulnerable bumblebee species. It is managed through a partnership between Natural Resources Wales (NRW), Newport City Council, and the Royal Society for the Protection of Birds (RSPB).

NRW oversees land management, conservation efforts, and species protection at Newport Wetlands, while the RSPB manages the Visitor Centre, educational programs, and visitor services.

The Newport Wetlands National Nature Reserve is situated about 11 miles from the nearest point of the Wye Valley National Landscape.

However, there are isolated records of each of the three species closer to the Wye Valley National Landscape.

4. Current factors affecting the species

4.1 Threats

Habitat Loss

- These bumblebees have declined for reasons similar to the overall decline in abundance and biodiversity in Britain: intensive farming practices has seen 98% of flower-rich meadows in England and Wales lost over the past century (Barkham, 2024). The conversion of flower-rich meadows and grasslands to intensive agricultural land reduces available habitats and foraging resources.
- Cultivation of previously uncut field margins eliminates important nesting sites and late-season foraging resources.
- Expansion of urban areas leads to the destruction of natural habitats and fragmentation of remaining habitats.

Climate Change

- Shifts in temperature can affect the timing of flowering plants and the emergence of bumblebees, disrupting their synchrony and reducing food availability.
- Increased frequency of extreme weather events, such as heavy rains and droughts, can destroy bumblebee habitats and reduce the availability of flowers.

4.2 Barriers to conservation

All three species are active through to early autumn, so they require late-flowering plants with a plentiful supply of nectar in September – to ensure the next generation goes into hibernation well fed. Unfortunately, the intensification of farming has led to significant changes in traditional practices. The annual hay-cut in July, which previously allowed some plants to flower again in September, has been replaced by multiple cuts for silage throughout the growing season. This change has reduced the availability of late-season flowers. Additionally, previously untidy and uncut field margins, which provided late nectar and nesting grounds, have been cultivated. As a result, there is now little space left for these carder bees (Barkham, 2024).

Research indicates that these bumblebees do not forage as far from the nest as many other species and need open, extensive flower-rich habitats near undisturbed nesting areas. Therefore, any 'stepping stone' habitats that are created may need to be closer together to help these carder bees expand their range.

5. Current Initiatives

5.1 Local protection, site management and programmes of action

The Natur am Byth! partnership is Wales' flagship Green Recovery project. It unites nine environmental charities with Natural Resources Wales (NRW) to deliver the country's largest natural heritage and outreach programme to save species from extinction and reconnect people to nature. The project began in September 2021 and is currently in Stage 2, ending in September 2027, with a budgeted total programme cost of £8m.

The Bumblebee Conservation Trust is leading conservation efforts for the Shill Carder bee as part of this project at three critical sites in South Wales; in Pembrokeshire, The Gwent Levels, and Kenfig. This includes the Newport Wetlands National Nature Reserve.

Monmouthshire Meadows, The Parish Grassland Project and Herefordshire Meadows are working with partners and stakeholders within and outside the Wye Valley National Landscape to create, restore, manage and provide management advice for meadow grasslands which ultimately benefits a range of pollinators including our bumblebee assemblage.

MonLife are responsible for several green infrastructure projects including the Nature Isn't Neat project, whereby areas of council-owned land are allowed to grow freely encouraging wildflowers along road verges and in parks.

To support the habitat of these carder bee species at the Newport Wetlands National Nature Reserve, NRW mows and bales the verges along paths and tracks around the reedbeds during the first week of October each year (as late in the season as possible). If space constraints prevent mowing and baling, these verges are flailed. Additionally, two meadow areas are cut and baled, with one meadow, approximately one hectare in size, having half of its area cut each year on a rotational basis.

The aim of this method of site management is to remove nutrients from the soil by taking the cuttings off-site, which will encourage the growth of the carder bees' food plants. This method also ensures that there is a late-foraging food source into October.

5.2 Survey, research and monitoring

Skills for bees: Cymru is a project run by the Bumblebee Conservation Trust aiming to increase knowledge and understanding of Welsh bumblebee populations. They are delivering identification and survey sessions, and training and mentoring recorders to participate in their flagship BeeWalk scheme in partnership with both organisations and individuals. Their aim is to develop a skilled community of bumblebee recorders and Beewalkers who will make a significant contribution to the understanding of bumblebees in Wales by providing the data which is essential for their future conservation.

Bees for Development are also providing bee identification training to members of the public in Monmouth and surrounding areas.

6. Conservations Visions

To enhance opportunities for this bumblebee assemblage across the Wye Valley National Landscape:

- Working with partners and landowners to ensure that late-emerging bumblebee habitat is considered within all management decision making.

More potential habitat to be created and connected to enhance opportunities for this bumblebee assemblage within the Wye Valley National Landscape:

- Working with partners and stakeholders to expand and join up new habitats in the Wye Valley National Landscape including wildflower meadows on improved and semi-improved-poor grassland and through arable reversion.

To see a sustainable increase in populations of this bumble assemblage across the Wye Valley National Landscape:

- Encouraging stakeholders to undertake surveys to determine bumblebee populations and monitor the progress of conservation efforts.

7. Conservations Actions

ACTION	HOW
Raise awareness of the decline of late-emerging bumblebees and the potential for a recovery in their numbers through appropriate action.	<ul style="list-style-type: none"> - Host events and workshops with the general public. - Work with partners and groups to spread the message. - Promote good practices relating to habitat management for bees.
Monitor the population of bee species.	<ul style="list-style-type: none"> - Encourage partners, volunteers and the general public to carry out surveys (at known established sites and potential new sites) using methods such as the BeeWalk. - Record signs and sightings of bees, and submit records to the relevant local environmental records centre. - Continued support of training events undertaken by Bees for Development and other partners. - Monitor and record the extent of un/semi improved grassland sites to track habitat enhancements against baseline figures.
Nurture and encourage bee action groups.	<ul style="list-style-type: none"> - Provide support through funding. - Assist with funding applications. - Facilitate meetings and promote the work of groups.
Encourage habitat improvements through creation and restoration of wildflower	<ul style="list-style-type: none"> - Encourage farmers and landowners to manage and restore existing, and create new wildflower

meadows and more diverse flower rich grasslands	meadows, promoting and assisting with applications for funding. - Work with farmers and landowners to encourage good land management practices to improve habitat and connectivity. - Continue to work with local meadow groups, promoting and supporting their work.
Encourage the general public to better manage their gardens and urban areas for bees.	- Produce and distribute promotional material about late-emerging bumblebees. - Signpost the general public to information sources. - Promote the Bumblebee Conservation Trust and other sources of information. - promote the importance of meadow grassland sites for bumblebees at shows and event, through talks and guided walks

8. Role of the Wye Valley National Landscape Team

- Support, advise, facilitate and co-ordinate conservation action for bees, either as lead or through partnerships with other stakeholders.
- Engage with and support landowners and land managers, encouraging best practice in managing late-emerging bumblebee habitat to enhance opportunities for their populations.
- Promote bee conservation within other wildlife conservation organisations and provide and encourage the provision of advice to the general public and practical support for landowners.
- Enthuse the general public to take part in surveying and providing records of bee sightings.
- Monitor habitat extent and bumblebee populations, to enable progress reporting.

9. Marking Progress

We will mark progress through:

- **Bee records:** When there are more records of bees in the National Landscape, indicating a population increase or an improvement in survey efforts.
- **Bee habitat:** When there is more available habitat and better connectivity in the National Landscape where bees are being recorded, indicating a population increase, an expansion in range or an improvement in survey efforts.
- **Late-emerging bumblebee measures:** When new measures are successfully implemented to support late-emerging bumblebee species e.g. late cuts/mowing (in October) or rotational cutting to ensure there is a source of pollen and nectar for late-emerging species.
- **Bee understanding and conservation efforts:** When information about bees is widely available to everybody, and bee habitat in the National Landscape is being enhanced.

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