Bees are vital to the ecology of the UK and provide significant social and economic benefits through crop pollination and maintaining the character of the landscape. Recent years have seen substantial declines in many species of bees within the UK. This report takes a closer look at how 13 ‘iconic’ bee species are faring in each English region, as well as Wales, Northern Ireland and Scotland. In the North West the report focuses on the *Osmia parietina*.

Authors Rebecca L. Evans and Simon G. Potts, University of Reading.
Through collating information on the 13 iconic bee species, common themes have emerged on the causes of decline, and the actions that can be taken to help reverse it. The most pervasive causes of bee species decline are to be found in the way our countryside has changed in the past 60 years. Intensification of grazing regimes, an increase in pesticide use, loss of biodiverse field margins and hedgerows, the trend towards sterile monoculture, insensitive development and the sprawl of towns and cities are the main factors in this.

I agree with the need for a comprehensive Bee Action Plan led by the UK Government in order to counteract these causes of decline, as called for by Friends of the Earth. But households and communities, local authorities and agencies, and devolved governments can also make a significant difference. And while it’s critical that the UK Government acts to reverse the decline in all bee species, some of the iconic bees identified in this research also have very specific and local needs.

Overarching Recommendations include:

> Government, local wildlife groups and local authorities to raise awareness of bee diversity and pollinators’ ecological and economic importance.

> Government to ensure further surveying and monitoring of wild bees to establish more accurate population numbers and changes.

> Government to ensure there is enough expertise and advice available for landowners, local authorities and farmers to inform bee-friendly land management.

> Government, local wildlife groups and local authorities to promote sympathetic grazing regimes to landowners and farmers that ensure adequate bee-friendly forage availability until the end of summer/early autumn.

> Government to encourage farmers to take-up the most beneficial Agri-Environment options such as sowing pollen and nectar mixes, buffer strips, wildflower margins, sympathetically managed hay meadows and semi-natural grasslands. These options need to be widely available and financially viable for the landowner.

> Government to set quantitative targets for the reduction of all pesticide use and to encourage the use of alternative pest management methods.

> Government to ensure protection for sites of importance to rare and threatened bees, for example with SSSI designation.

> Local planning authorities to ensure that biodiversity priority lists and action plans are consulted as part of their consideration of any planning or development proposals and damage to priority species and habitats avoided.

> Government and local planning authorities to encourage developers to include bee-friendly habitat when carrying out developments.

> Planning authorities to identify important populations of rare or threatened bee species and significant sites for bees in their local plans, ensuring that they are adequately protected.

> Local authorities and local wildlife groups to encourage gardeners and local communities to grow more wild and/or bee-friendly plants in open spaces and gardens.

> Local authorities to grow more bee friendly plants in parks and open spaces.

These actions cut across various policy areas and involve multiple actors. Friends of the Earth's call for a Bee Action Plan is primarily aimed at the UK government, but would involve devolved governments, key stakeholders such as farmers, bee keepers, local authorities and agencies to advise on its content and implementation.

Simon G. Potts,
Professor of Biodiversity and Ecosystem Services,
School of Agriculture, Policy and Development,
University of Reading.

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1 Government refers to UK Government or where powers are devolved to the relevant devolved Government

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**Key Facts:**

> A rare and declining mason bee, in England only found in the North West and only where there is the presence of the wild flower, Bird’s-foot trefoil.

> The bee’s Latin species name parietina means ‘old walls’ and refers to its habit of nesting in old dry-stone walls, although it will nest in other cavities too.

**Best places to see:** Gait Barrows NNR, Canforth Slag Banks and Hutton Roof Slags, Lancs.

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Osmita parietina © Carl Clee
Description

This small but robust black bee (8-9mm) has golden to brown coloured hair covering the face and thorax. The abdomen is predominantly black with a sparse covering of golden to pale hairs.

Distribution and Status

- Widely distributed throughout northern Eurasia.
- In the U.K restricted to North West Britain with most recent records from North West England, north and west Wales and southern and northern Scotland.
- Associated with semi-natural and unimproved grassland (including coastal machair in Scotland), open post-industrial sites and woodland clearings where there is the presence of the leguminous plant Bird’s-foot Trefoil which is its main source of pollen in Northern England and Wales.

*O. parietina* is listed as Rare\(^1\) in the Red Data Book for the British Isles by Shirt (1987) and Falk (1991) and is on the England Biodiversity Strategy S41 species list\(^2\) (previously the UK List of Priority Species and Habitats under the UK Biodiversity Action Plan (UK BAP).

\(^1\) A species which at present is not considered endangered or vulnerable but is at risk or is believed to be rare due to only recently being discovered.

\(^2\) This is a list of species and habitats identified to be of biodiversity conservation priority in England that should be taken into consideration during planning and development initiatives.
Ecology and Behaviour

- Like most other mason bees, *O. parietina* nests in cavities. They will utilise sheltered, warm and/or south-facing dead wood and dry stone walls.
- One of the favoured nesting habitats in the north West is broken limestone paving.
- The nest is probably constructed with chewed plant material.
- Egg cells are provisioned with pollen from Bird's-foot trefoil and possibly other leguminous plants.
- The species will collect nectar from a variety of plants such as Bramble and Bugle.
- Both sexes are seen from May-July.
- *O. parietina* is known to be parasitized by the wasps *Chrysura hirusta* and *Sapyga quinquepunctata*.

Causes of Decline and Conservation

- The threats and causes of decline to this bee are likely to be on-going land use change and agricultural intensification.
- Optimal habitat has and is being lost through conversion of flower-rich grassland to more intensive agricultural and grassland systems or a lack of grazing/cutting leading to grasses, scrub and other plants outcompeting wild flowers.
- Some sites could still potentially support the bee but areas of the correct resources are so fragmented that populations are unable to disperse to them.
- The reason it fares better in certain areas of the North West is probably because of sensitive grassland management there. Examples of this include grazing or cutting different areas on rotation so that there are always nesting sites and flower rich areas available throughout the bee’s life cycle, using cattle for grazing rather than sheep which are much less damaging or delaying grazing/cutting until after the bee’s cycle.
- Another factor contributing to the bee faring better in North-western England is due to the presence of better quality and/or more nesting habitat. In the North West this is often damaged limestone pavement or other alkali-rich bare rock.
- In order for any management to be effective, we need to understand the ecology and behaviour of the species better. In 2011 the aculeate conservation group Hymettus undertook work to look into the characteristics of the habitats in which *O. parietina* occurs. Four sites in Cumbria and Lancashire were visited but no individuals were found. However around the same time, a female was recorded at Warton Crag, Lancashire for the first time.

Recommendations

The report authors agree with the need for a **Bee Action Plan** to address urgent actions to be taken by the UK government, as called for by Friends of the Earth's Bee Cause campaign.

Further potential strategies to assist *Osmia parietina* include the following:
- **UK Government** to introduce a national programme to monitor populations of wild pollinators including declining, threatened or rare bee species including *O. parietina*. 
Local recorders and/or wildlife organisations to carry out further survey work of existing populations and identify any new sites where the species was previously unknown or hasn't been seen in a while.

Local recorders and wildlife groups to record the species and submit the data to the Bees, Wasps and Ants Recording Society (BWARS).

Local recorders and/or wildlife organisations to carry out further investigation into the autecology\(^1\) of known populations so that their habitat requirements are better understood and any beneficial management undertaken can be more informed.

Local recorders and wildlife groups to identify any corridors of potentially suitable habitat between existing populations and relate this to published data on the species' dispersal distance and propensity. This information can then be used to determine if colonisation of these sites would be feasible given appropriate management of the corridor.

If a corridor is established then it should be monitored by local authorities, local wildlife groups/organisations, or recorders. If it is deemed particularly important the local authorities are recommended to incorporate it into their local plans to provide protection for the corridor and the species dependent upon it.

The public, local recorders and wildlife groups to raise awareness of *O. parietina* with other members of the public, local conservation organisations, local authorities, MPs and land owners where the bee does or could potentially occur.

Government agencies, wildlife organisations and local authorities to give advice to landowners in the above areas (and those surrounding) to encourage appropriate habitat management incentives such as grazing regimes. These would support the bee’s nesting habitat and forage plant, Bird’s-foot trefoil, ensuring there is always the appropriate resources at the critical times of its life cycle. Using cattle instead of sheep for grazing (cattle are less damaging) and delaying grazing or cutting until after the bee’s life cycle, i.e. August would be beneficial (it would be even more beneficial to delay until Autumn as this would also ensure forage for a range of bees that fly later than *O. parietina*). Farmers should be encouraged to leave sheltered, south facing patches of alkali-rich bare soil, broken paving and dry-stone walls for existing or potential nesting sites.

Government agencies, wildlife organisations and local authorities to encourage farmers to select Agri-Environment Scheme options beneficial to pollinators, particularly sowing of legume rich pollen and nectar mixes.

Local wildlife groups, recorders or local authorities to trial artificial bee nest boxes since they are often successfully taken-up by species of Osmia and could help in areas where a lack of adequate nesting sites has been identified.

If any management is undertaken then monitoring of its effectiveness by local recorders, wildlife groups or local authorities should be undertaken.

Local authorities should record any important sites (either already in existence or identified by the further survey work) for the bee in their local plans and ensure policies and mitigation plans are then in place to protect these populations.

UK Government and local authorities to encourage developers to include bee-friendly habitat when carrying out developments and this would be in-line with the National Planning Policy Framework which aims to achieve biodiversity gain.

Local people in the region could also join local campaigns such as Friends of the Earth ‘Bee worlds’ project and also sign their petition for a Bee Action Plan [http://www.foe.co.uk/what_we_do/beecause/35042.html](http://www.foe.co.uk/what_we_do/beecause/35042.html)

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\(^1\) The interaction of a single species (or individual) with its environment.
References


Want to know more?

More information about the University’s work on bees can be found at www.reading.ac.uk/caer/staff_simon_potts.html

Information about Friends of the Earth’s The Bee Cause campaign can be found at www.foe.co.uk/bees