

# POLICIES FOR POLLINATORS

The Need for Government Leadership  
in Backing England's Bees



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Protecting People and Planet

## THE BEE COALITION

**Buglife, Client Earth, Environmental Justice Foundation (EJF), Friends of the Earth, Natural Beekeeping Trust, Pesticide Action Network UK, Soil Association and The Wildlife Trusts** are working together to express public concerns about the future of pollinators and the vital services they provide and to highlight to the Government the need for action surrounding their protection.



**Buglife:** [www.buglife.org.uk](http://www.buglife.org.uk)  
**Client Earth:** [www.clientearth.org](http://www.clientearth.org)  
**EJF:** [www.ejfoundation.org](http://www.ejfoundation.org)  
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**Soil Association:** [www.soilassociation.org](http://www.soilassociation.org)  
**The Wildlife Trusts:** [www.wildlifetrusts.org](http://www.wildlifetrusts.org)

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# CONTENTS

<b>KEY REASONS TO PROTECT OUR INSECT POLLINATORS</b>	<b>5</b>
<b>THE ISSUES</b>	<b>6</b>
<b>NO ALTERNATIVE:</b> A case study of the reality of pollinator loss	<b>8</b>
<b>NATIONAL AND INTERNATIONAL COMMITMENTS</b>	<b>10</b>
<b>UNDERSTANDING POLLINATORS:</b> Ecology, Monitoring and Management	<b>12</b>
<b>FARM HABITATS FOR POLLINATORS</b>	<b>14</b>
<b>ORGANIC FARMING</b>	<b>15</b>
<b>PESTICIDES</b>	<b>16</b>
<b>FARMING FOR POLLINATORS AND PROFIT</b>	<b>18</b>
<b>CONSERVATION OF NATURAL HABITAT AND SPECIES</b>	<b>19</b>
<b>PLANNING:</b> Green infrastructure for pollinators	<b>20</b>
<b>NATIONAL POLLINATOR STRATEGY</b>	<b>21</b>
<b>KEY POLICY RECOMMENDATIONS</b>	<b>22</b>
<b>REFERENCES</b>	<b>23</b>



Picture: The brown-banded carder bee, *Bombus humilis*, is an endangered species protected by the NERC Act 2006. © Sam Ashfield, BUGLIFE

England's pollinators are facing widespread, serious declines, threatening the services they provide to our agriculture, wildlife, natural environment and culture. The scale of their importance requires their urgent protection. But protecting our wild pollinators is not only about what they do for us – they should be protected for their intrinsic value too. Many communities, individuals, businesses and local councils are already stepping up to take action for bees. The Westminster Government has recognised the importance of insect pollinators and the threats to them. But so far action from the Government is not adequate to address the threats that pollinators face. The health of our ecosystems is essential for maintaining the health of our economy, and must be the top priority in Government decision making.

Eight environmental organisations set out priorities for the Government which are essential for increasing pollinator numbers and restoring the ecosystem services they provide. These include how current policy should be improved to provide pollinators with abundant well-connected habitat, plentiful food and freedom from toxic chemicals and disease.

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## KEY REASONS TO PROTECT OUR INSECT POLLINATORS:

- They are responsible for every third mouthful we eat.
- They pollinate crops containing essential nutrients, such as fruits, beans and vegetables.
- Their pollination services are free; without them, pollinating our crops would become a very expensive and time-consuming task.
- Their loss would exacerbate plant declines, such as losses seen in wildflowers.
- They are part of complex ecosystems: other wildlife depends on pollinators and the plants they pollinate for shelter and food.
- They are intrinsically valuable as a beautiful, fascinating and very diverse group of animals.
- They are of huge value to our culture: people love bees, butterflies, hoverflies and other pollinators!

## THE ISSUES

Insect pollinators, which include species of bee, moth, hoverfly, fly, butterfly and beetle, play an essential role in England and around the world as the providers of vital pollination services for many commercial crops and wild plant species.

### DECLINES

The threat to bees is not restricted to England with the recent European Red List for Bees showing that nearly one in ten species of wild bees are facing extinction.

The State of Nature 2013 report showed the extent of insect declines – more than half of the bee, butterfly and moth species studied have declined in the past 50 years. In recent decades, UK managed honeybee hive numbers have decreased by 54%, three bumblebee species have become extinct<sup>1</sup>, 52% of solitary bees have declined<sup>2</sup>, 227 species of moth have declined (with 62 species going extinct in the 20th century, and, possibly, four more since 2000)<sup>3</sup> while 72% of butterfly species experienced downward trends between 2001-2011<sup>4</sup>.

### CAUSES

Pollinator declines are caused by a combination of drivers including: the loss of pollinator habitat and habitat fragmentation, loss of wildflowers and diverse food sources, increased use of harmful chemicals (pesticides and herbicides), changes in beekeeping and the spread of disease<sup>5</sup>. The drivers of wild pollinator declines can be

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directly related to the intensification of agriculture<sup>6</sup>, which has led to loss of habitats and an increased use of pesticides and herbicides, and urbanisation. Historically, the most rapid rate of pollinator extinction is associated with changes in farming beginning in the 1920s<sup>7</sup>. Since the 1930s in the UK we have lost an estimated 97% of our wildflower meadows<sup>8</sup>, which provide habitat and food sources for wild pollinators.

New evidence indicates that climate change is increasingly a threat to bees, making it even more urgent to reduce other stressors such as pesticides, and help bees to adapt by creating high quality diverse habitat.

Changes in the numbers of managed honeybees on the other hand, tend to relate to beekeeping practices and the number of beekeepers, as well as factors affecting bee health. The latter include disease issues, resulting from the national and international trade in managed bees<sup>9</sup>, and the negative impacts of pesticides and herbicides.

## Dangers to insect pollinators in the UK have resulted in their inclusion on threatened and vulnerable species lists, or 'Red Lists'.

- **1987:** The UK Red List of threatened species included 71 species of wild bees, classifying 47 of these as Vulnerable or Endangered.
- **1995-99 (last updated 2007):** The UK Biodiversity Action Plan (BAP) list of priority species contained wild pollinators including 20 species of bee, 24 butterflies and hoverflies, with the remaining groups bringing the total to around 250 pollinators listed.
- **Today:** England, Wales, Scotland and Northern Ireland have assembled lists of priority species for conservation action. For example, in England, the Natural Environment and Rural Communities (NERC) Act 2006 establishes 'Species of Principle Importance for Conservation'.
- **Currently,** in this way, the NERC Act 2006 'protects' 17 of the UK's 267 bee species, 22 butterflies (out of 56), 3 hoverflies (of 250), 141 moth and 6 wasp species.
- **However, NERC does not offer adequate legal protection for these pollinator species.** For example in England the Act only requires public bodies (such as local councils) to "have regard to the conservation of biodiversity in England, when carrying out their normal functions as a requirement of adhering to planning policy". Therefore these do not require public bodies to take action by, for example, restricting development over the habitat of these pollinators.
- **Reversing the decline of these species will only be possible if activities to conserve them are improved – legal protection more directly targeted would provide a stronger mechanism for this.**

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Since 1930s  
we've lost  
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Pollinators contribute  
**£690m**  
worth of crops  
to our economy every year...

...It would cost the UK  
**£1.8bn annually**  
to pollinate crops  
without them

#### ECONOMIC IMPORTANCE

Insect mediated pollination is vastly important to the economy, with pollinators responsible for a net £690 million worth of crops every year in the UK. UK bees, both domesticated (honeybees and buff-tailed bumblebees) and the 250+ species of wild bees (bumblebees and solitary bees) and other insect pollinators are very important commercially, as they are essential for the efficient pollination of major crops, such as oilseed rape, tomatoes, strawberries and apples<sup>10</sup>. Insect pollination increases crop yields<sup>11</sup> as well as marketability; for example, by improving the quality of the produce and lengthening its shelf-life. Insect pollinated crops make up 20% of Britain's cultivated land<sup>12</sup>, and the costs of pollinating them without the services of insects are estimated to be at least £1.8 billion a year<sup>13</sup>. Honeybees probably pollinate between 5 and 15% of crops; wild pollinators do the rest, and for some crops, are much more effective pollinators than, and cannot be substituted by, honeybees. Having a diverse range of pollinators is important for resilience in the face of future change, and may be important for crop yield<sup>14</sup>.

#### ECOSYSTEM ESSENTIALS

Maintaining our native flora, including wild flowers such as poppies, cornflowers and bluebells, as well as trees and hedges, also depends on healthy pollinator populations. The close relationship between pollinators and the plants they pollinate is evident in the parallel declines seen across both the UK and Europe<sup>15</sup>; 76% of plants preferred by bumblebees have declined in recent decades, with 71% undergoing range restrictions<sup>16</sup>. Pollinator declines spell bad news for already declining wildflowers, which are mostly insect-pollinated and a quarter of which are threatened. In turn, other wildlife depends on both pollinating insects and pollinated plants for food and shelter. Insect-pollinated hedgerows and ivy provide birds with fruit in winter months as well as shelter and habitat, while the insects themselves provide an important link in the food chain as prey for other insects, insect-eating birds, bats and other animals.

#### BENEFITS TO SOCIETY

Multiple sectors in society apart from agriculture and the environment also benefit from the services of pollinators, including health and social well-being, sport and recreation, education, energy (for example biofuels), tourism and culture. The Government itself recognises that people's appreciation of pollinators is an important non-economic but culturally valuable asset<sup>17</sup>.

Field margins for wildlife. Agri-environment scheme options, RSPB Hope Farm. © Andy Hay (rspb-images.com)



## NO ALTERNATIVE:

# A case study of the reality of pollinator loss

Agricultural economies globally are vulnerable to pollinator losses because of the unsustainable options available to replace them. This case study shows how the combined effect of habitat loss and pesticide use can cause pollinator loss with knock-on effects for the livelihoods of entire regions of people.

In the ‘apple valley’ of the Maoxian county in south west China, apples were once the top cash crop of the area. However, intense pesticide spraying (an average of eight times a season for four decades), combined with habitat loss, obliterated the local insect pollinator population. Apples require cross-pollination, and without the insects to do this, farmers were forced to take up the job instead as ‘human pollinators’.

When their orchards bloomed, farmers had a five-day window to pollinate them. This is an immense task: first pollen must be collected by processing apple flowers, and then each apple tree must be visited individually, and the pollen, carried in small bags, dabbed onto the blossoms with paintbrushes. One person can only pollinate 5-10 trees a day in this way. Therefore men, women and children were all involved and extra workers had to be hired on most orchards. From the late 1980s through to the early 2000s, labour-intensive hand pollination had become commonplace; in 2001, 100% of the apples in the Maoxian county were hand pollinated.

Despite the labour required, farmers felt there was no other option for pollinating apples. Farmed honeybees were not an option, despite being eight times cheaper than human labour; the Government attempted to encourage beekeeping, but pesticide use in the area was so high that many colonies were lost. So the beekeepers, left uncompensated for their losses, were discouraged. But eventually, human pollination proved to be unsustainable because of the rising cost and scarcity of labour, and the falling market value of apples.

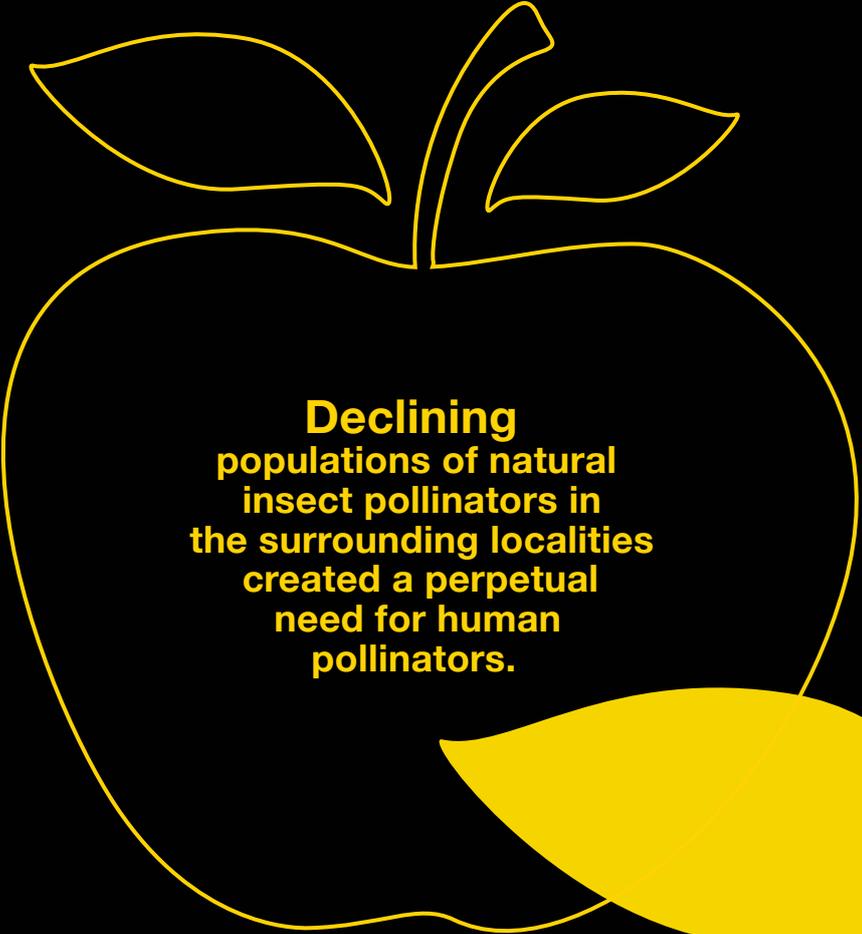
With options for pollination running out, farmers switched to growing mixes of self-pollinated varieties of crops such as plum, loquat and walnut. By 2011, apples comprised only 30% of crops grown in the area.

This pollination example is not an isolated case. Research by Uma Partap reported pollinator losses with damaging effects on apple production in India, Pakistan, Nepal and Bhutan, in addition to China.



This case study reports findings from the paper: *The Human Pollinators of Fruit Crops in Maoxian County, Sichuan, China*.

Farmers pollinating apple flowers. © Uma Partap



**Declining  
populations of natural  
insect pollinators in  
the surrounding localities  
created a perpetual  
need for human  
pollinators.**



**The Government  
is legally bound to  
protect biodiversity  
at national, EU and global  
levels, yet is failing on targets  
for wildlife protection.**

The combined populations of  
UK conservation priority  
species **have declined  
by 77% since 1970.**

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# NATIONAL AND INTERNATIONAL COMMITMENTS

The Conservative Party Manifesto 2015 reaffirmed the party's commitment to "the goal of being the first generation to leave the natural environment of England in a better state than that in which we found it." The document states "we will protect your countryside, Green Belt and urban environment" and "help our bees to thrive."

The Government has committed to producing a 25 year plan for restoring nature.

The UK is legally committed to protecting biodiversity and pollinators, at EU and global levels. The European Union's (EU) Habitats and Wild Birds Directives oblige Member States to protect and enhance wild species and habitats through the implementation of the 1982 Bern Convention. On a global level, the UK is a signatory to the legally binding Convention on Biological Diversity, first signed at Rio de Janeiro in 1992 and most recently re-pledged in Japan in 2010, where the 'Aichi Targets' were formed<sup>18</sup>.

Despite these national promises and the existence of the international conventions for more than two decades, the UK Government, as of 2013, was found to be failing in the majority of its environmental commitments, with 30% of UK ecosystem services, such as pollination, found to be in decline in 2011. In December 2014, Government revealed that just 3% of most precious wildlife sites in England were in good condition in 2013, down from 6% in 2007<sup>19</sup>.

Targets for wildlife contained within the Government's flagship conservation strategy, 'Biodiversity 2020: A strategy for England's wildlife', are not being met, alongside failing targets to meet the European Commission Habitats and Wild Birds Directives. The 2013 State of Nature Report found 60% of all species assessed to be declining. An indicator comprising 155 conservation priority species has fallen by 77% overall since 1970, with a drop of 18% between 2000 and 2010. Despite the urgency of the issue, the Government failed to refer to the state of nature in Britain at all in its mid-term review in 2013<sup>20</sup>.

Current legal protection for pollinators is patchy and incomplete. The Wildlife and Countryside Act (1981) currently protects 25 butterfly species (6 fully and 19 partially) and 8 species of moth. No bee, wasp or hoverfly species are included in the Act. As a requirement of the 2006 NERC Act, other pollinator species have been placed on national lists; however, these lists do not provide any adequate legal protection (see box on page 6). Clearly there is a need to re-address the Government's environmental commitments – including the protection of pollinators – and to catch up on failing targets.





## Recommendations for Government:

- Work with stakeholders to develop and implement an ambitious and effective 25 year plan to restore nature, involving all parts of Government in its delivery;
- Add more pollinator species, including bees, to Schedule 5 of the Wildlife and Countryside Act (1981);
- Ensure that good management plans are in place for protected sites, and work with landowners to reduce pressure on them, to bring sites into good condition.

# UNDERSTANDING POLLINATORS: Ecology, Monitoring and Management

## RESEARCHING POLLINATORS

Scientific research into both the drivers of pollinator declines and the management options to protect and enhance them is timely and essential for filling knowledge gaps and better guiding key policy decisions. The Insect Pollinator Initiative, a series of nine scientific projects researching pollinator declines, has addressed a number of questions well and leaves scope for similar projects and collaborations to build on its progress and to disseminate the findings to farmers, developers and other landowners and users. The Initiative ended in 2015<sup>21</sup>.

Policy decisions surrounding pollinators have previously reflected a lack of sufficient Government understanding of both the intrinsic and economic importance of pollinating insects. On top of this, the majority of Government funding and research is biased towards honeybees and, to some extent, to bumblebees, despite the fact that other insect groups, such as solitary bees and hoverflies, contribute significantly to pollination and are therefore economically important. Pollinators are vulnerable to further decline as a result of knowledge gaps; for example, how pesticides combine with other pressures, such as disease and habitat loss, to form a 'cocktail' of lethal effects.

## MONITORING

National monitoring schemes exist for some pollinator species (butterflies, moths and bumblebees), but are missing for other wild bees and pollinators, and all schemes are largely reliant on the enthusiasm and skill of amateur recorders.

There is detailed data on butterfly population trends for the UK, while data for other pollinator species, including wild bees, is less in-depth. Moreover, existing data tells us nothing about trends in pollination services; information which is key to making better predictions for crop production and management of a healthy ecosystem. Proper monitoring is essential for building up the right evidence base needed to guide policy. Options for a national pollinator monitoring scheme are being developed by Defra under the auspices of the National Pollinator Strategy<sup>22</sup>.



Surveying butterflies - RSPB Hope Farm  
© Andy Hay (rspb-images.com)

## MANAGED BEES

Honeybees have also been facing declines, both from the reduction in beekeeper numbers and by threats from new viral and fungal diseases and exposure to chemical pesticides. Bumblebees are also increasingly domesticated for commercial pollination use, and other species are being considered. This may have implications for disease spread, with colonies for commercial use being moved around the country and also imported, raising risks of bringing infected bees into contact with new colonies.

Disease spread is a threat to both managed bees and wild pollinators. Research shows that honeybee diseases can 'spill over' into wild species, such as bumblebees<sup>23</sup>. Use of chemically intense veterinary chemical treatments against pathogens (such as the varroa mite, varroa destructor) can also weaken bee colonies.



Marmalade hoverfly, *Episyrphus balteatus* © Steven Falk

# Recommendations for Government:

## RESEARCH

- Support independent research to close knowledge gaps in pollinator ecology and conservation. This research should build on questions addressed in the Insect Pollinator Initiative;
- Disseminate the findings of the Insect Pollinator Initiative to farmers and other land users;
- Specifically, priority should be given to under-studied pollinator groups, a valuation of pollinator ecosystem services, agricultural management for encouraging pollinators and the quantifying of benefits of pollinators in urban areas.

## MONITORING

- Introduce and support a long term National Pollinator Monitoring Scheme to establish a measure of pollinator abundance and also consider adding the need for clear monitoring and relevant information as part of the European Food and Safety Authority (EFSA) review process;
- This scheme should be led by independent scientists and should draw on and support professionals and amateur expertise for monitoring, validation and reporting.

## MANAGED BEES

- Ban the importation of bumblebee colonies from abroad;
- Review and update the Healthy Bees Plan (2009), to make use of appropriate bee husbandry to control pathogens, rather than the standard chemical medicines;
- Develop an action plan to reduce the importation of honeybees, which have introduced and spread disease and pose a risk to native bees.



# FARM HABITATS FOR POLLINATORS

About three-quarters of land in England is farmed. As well as providing food, farmland can deliver a range of benefits to society, from beautiful landscapes to flood protection, and provides vital habitat for pollinators. Farmland needs to be managed in ways that protect these services for the future. Supporting healthy pollinator populations brings short-term economic benefits for farmers in the form of better crop yields and quality, as well as contributing to the health and vibrancy of the wider countryside.

It is crucial that the Government recognises the connections between farming methods and environmental health by supporting a shift towards agro-ecological farming practices that protect wildlife and pollinators, and by setting a strong regulatory framework to protect the environment from damaging land management practices.

## ON-FARM MEASURES

Pollinators need a variety of flowers for food and habitats for nesting, but historical changes to farming have simplified the farmed landscape and removed many of the resources pollinators need. Use of pesticides and fertilisers can reduce the quality of habitats for pollinators. Agricultural policies need to support and incentivise farmers to put diversity back into the landscape.

Research shows that both sensitive management of crops and retaining semi-natural habitats in the farmed landscape are important to enhance pollinator services and, in turn, the yield, quality and profit of the crops. For example, a study in France found that Oil Seed Rape crops were subject to increased pollination and therefore have increased market value when they adjoin forest edges (where wild bees nest and mate)<sup>24</sup>. A recent Swedish study found that pod development in field beans (which requires efficient pollination) was higher on organic than on conventional farms, and was highest on organic farms set in diverse landscapes that included semi-natural habitat<sup>25</sup>. In the UK, wild bees add £37 million annually to the value of British Gala and Cox apples alone in quantity of production<sup>26</sup>; however, a further £5.8 million a year can be included through the increased quality of the apples.

Common Agricultural Policy (CAP) payments to English farmers will amount to £15 billion between 2014 and 2020. The Government must ensure that this huge amount of public money is wisely invested, supporting farmers to deliver real benefits to our wildlife including pollinators.

- Cross-compliance rules provide the regulatory baseline for CAP payments, securing a basic level of environmental protection across the whole farmed landscape.
- CAP reform has introduced 'Greening', which links one third of the subsidy cheque received by farmers to new environmental requirements, such as obligations to create Ecological Focus Areas. In England, the Government has chosen to offer farmers the maximum amount of flexibility in how they implement Greening, meaning that there is no guarantee that Greening will deliver improvements for pollinators and other wildlife in the farmed landscape.
- Agri-environment schemes offer payment for environmental actions that go above and beyond cross-compliance and Greening. Studies of agri-environment schemes have shown that well-chosen land management options can have excellent results for pollinators and other wildlife<sup>27</sup>.
- The new scheme, Countryside Stewardship, will be a vital tool to help wildlife under the new CAP programme. It is essential that the scheme secures sufficient uptake of high-quality options to support healthy pollinator populations across the country.

There is a need for sources of independent advice for farmers, as lack of advice has been identified as a barrier to changes in farming practices. Farmers need good advice on ongoing management for pollinators, accessible information on the latest scientific research into pollinators and agriculture, and independent advice on agrochemicals.

## THE WIDER PICTURE

Landscape-wide approaches are also essential for improving habitat quality and connectivity for pollinator species. Isolated habitat patches which are separated from others by wide expanses of barren or hostile landscape have limited benefits for insects. Initiatives such as the B-lines project by Buglife, which aims to connect up strips of pollinator-friendly habitat nationwide, should be both encouraged by the Government and advertised to landowners.

## Recommendations for Government:

Increase the area and quality of pollinator-friendly habitats on farms and across landscapes.

### On farms...

- Ensure that all areas of farming policy support environmentally-friendly farming practices;
- Develop a policy framework to increase the area and impact of the organic sector and increase support for High Nature Value farming;
- Ensure all parts of the CAP, particularly agri-environment schemes, Greening and cross-compliance; work together to deliver improvements for pollinators across the farmed environment;
- Put in place well-enforced cross-compliance rules that set a strong standard of protection for the countryside;

- Monitor implementation of Greening, and strengthen the protections it provides, as a priority, if it is found that it is not delivering sufficient benefits for pollinators;
- Increase and improve in quality the area under agri-environment pollinator habitat;
- Monitor the impacts of CAP reforms annually to ensure benefits are being delivered for wildlife and other pollinators.

### Across the landscape...

- Develop approaches to delivering better connected habitats for wildlife, especially in areas highly valued for their biodiversity conservation;
- Inform landowners of existing initiatives to create habitat-linking corridors. Ensure that landowners are encouraged and supported to contribute to initiatives such as B-lines that create habitat linking corridors.

## ORGANIC FARMING

Organic farming is a proven way of supporting pollinators. Two recent major reviews have found on average 49% more pollinator species on organic farms<sup>28</sup> and 74% more wild bees<sup>29</sup>. Increasing the proportion of agriculture that is managed using organic practices would therefore dramatically increase the number of pollinators in our countryside. Research also suggests that this could increase the pollination success of crops<sup>30</sup>.

These increases in bee abundance and diversity are likely due to the following:

- Organic farming severely restricts the use of both insecticides and fungicides – these are frequently toxic to insect pollinators and can increase their susceptibility to disease.
- Studies show that organic farms have an increased coverage and diversity of wild flowers, both within fields and on field edges – with on average, around 75% more species of plants than non-organic farms. This is largely due to the ban on all use of herbicides on organic farms<sup>31/32</sup>.
- Instead of relying on chemical inputs, organic farms use agro-ecological techniques to manage fertility and control pests and these also help to support pollinators. Practices include the use of cover crops, mixed cropping, crop rotations and 'nitrogen fixing' legumes, such as the red and white clover in grassland on organic arable and livestock farms.
- The increased diversity of flowers increases the likelihood of flowers being available throughout the year – this closes the 'hungry gap', the times when pollinators suffer from a periodic lack of food, typically between late autumn and early spring, which has been shown to be a factor in bee declines<sup>33</sup>.

Organic farms have on average a 30% higher count of total species (pollinators and everything else) than conventional farms<sup>34</sup>, thus they play an important role in supporting local ecosystem health. A move towards organic farming could also improve soil health<sup>35</sup> and water quality, and reduce energy and fossil fuel use<sup>36</sup>. A new review shows that organic farming is a competitive alternative to non-organic agriculture – the research found yield gaps were less than previously thought. The researchers who conducted the review concluded by saying that yield gaps between organic and non-organic farming would be further reduced by the investment of research funding into innovative organic farming methods<sup>37</sup>.

# PESTICIDES

Pesticides, such as insecticides and herbicides, can be damaging to pollinators, other wildlife and the ecosystem<sup>38</sup>. Herbicides kill meadow flowers and arable plants, reducing forage options for pollinators<sup>39</sup>. Many insecticides are highly toxic to pollinators and three neonicotinoids were restricted by the European Commission in 2013 due to the risks they posed to honeybees and potential effects on wild bees<sup>40</sup>.

Fields of crops in England, such as oilseed rape, can be treated with as many as 22 applications of chemicals, including pesticides, herbicides and fertilisers, with potentially disastrous effects on pollinators; the chemicals come together to form a 'lethal cocktail' of toxic effects<sup>41</sup>. Not only are combinations of multiple chemicals dangerous, but they are rarely tested for and are less well studied than other factors potentially affecting bees, despite growing evidence that chemical pesticides can increase the susceptibility of pollinators to parasites and diseases<sup>42</sup>.

Pesticides can pose an ongoing risk to pollinators and wildlife long after their application, and over a wide geographical area. Some are persistent in the environment and can become washed into natural habitats with rain water, thus entering off-farm pollinator habitat. For example, in the spring of 2013, 91% of water samples taken at Canadian wetlands after snow-melt were contaminated with neonicotinoids, which demonstrates their ubiquity and persistence<sup>43</sup>.

High levels of neonicotinoids have also been found in wildflowers including poppies and hogweed that are growing next to treated fields. Due to the persistence and distribution of neonicotinoids in the environment the current restrictions, which only relate to crops attractive to bees, need to be extended to all crops.

There are many agricultural techniques which reduce the need for pesticides, such as crop rotation, the use of resistant varieties of plants and the careful monitoring of pest populations to determine if threshold levels have been exceeded. Approaches that use all

of these techniques and others in a co-ordinated way are known as Integrated Pest Management (IPM). Better deployment of IPM techniques could yield excellent results. It has been shown that re-designing crop rotations and using new technologies could reduce pesticide use by 50%<sup>44</sup>. Farming methods which already properly employ these techniques to achieve minimal dependency on pesticides, such as organic farming, are more ecologically sustainable, are richer in wildlife and benefit pollinators<sup>45</sup>.

Under IPM, pesticides should be used only when absolutely necessary, as a last resort when preventative non-chemical techniques have failed. However, a culture has developed where the use of pesticides is an insurance measure against potential pest damage, rather than a reaction to real need. For example, evidence increasingly suggests that neonicotinoids do not deliver the yield benefits to crops that it was assumed they did, thus emphasising how the risks they pose to pollinators and the environment justify a ban<sup>46</sup>.

The Government's 2012 National Action Plan for pesticides (NAP) is inadequate to meet EU requirements to increase the sustainability of pesticide use<sup>47</sup>. The Government should be proactive in encouraging non-pesticide approaches to pest control.

As a general principle the Government should employ the precautionary principle, which is enshrined in European legislation and aims to ensure that even if there is doubt as to the harmful impacts of a product or action, precaution should be taken in favour of protecting human or animal health and the environment.

The evidence on neonicotinoids has now piled up to the point that the risk to bees is essentially confirmed. This is therefore no longer a debate about how the precautionary principle should be applied. The Government's failure to accept the need for restrictions on neonicotinoids is a failure to address long-term agricultural sustainability or deploy sound evidence.

## Recommendations for the Government:

### Take action to reduce risks to pollinators from chemical use on farms:

- Work with the farming industry to ensure that independent advice is provided to farmers on sustainable pest management approaches;
- Replace the inadequate 2012 UK National Action Plan for pesticides with a plan which robustly plans for reductions in the use of pesticides, as required by EU law;
- Prioritise research into how pesticides affect pollinators both alone and in conjunction with other pesticides, diseases and parasites and how they persist in the environment;
- Work with the European Commission to incorporate statistically robust, taxonomically adequate and synergistic tests into revised risk assessment processes for pesticides;
- End commercial secrecy in agrochemical product approvals, create a trials register and make all test findings available to the public and scientists;
- Improve monitoring and information provision on which pesticides are used at which locations in the UK;

- Undertake a review of the pesticide market with a focus on the appropriateness of commission based selling and the duration of patents.

### Take action on neonicotinoids:

- Ensure and implement a ban on all uses of the three currently restricted neonicotinoids which pose a threat to pollinators and extend the ban of these neonicotinoids to use on all other crops;
- Place a high priority on developing and promoting safe alternatives to neonicotinoids, both chemical and non-chemical, especially when used on flowering crops;
- Introduce specific measures to monitor compliance with and the effectiveness of the neonicotinoid restrictions. Comply fully with the existing restrictions on neonicotinoids, including not allowing derogations for use in any part of the UK;
- Fund urgent research to address other emerging concerns around all neonicotinoids, including persistence in soil, impacts on aquatic wildlife and effects on birds.



Spraying in Nottinghamshire © Chafer Machinery



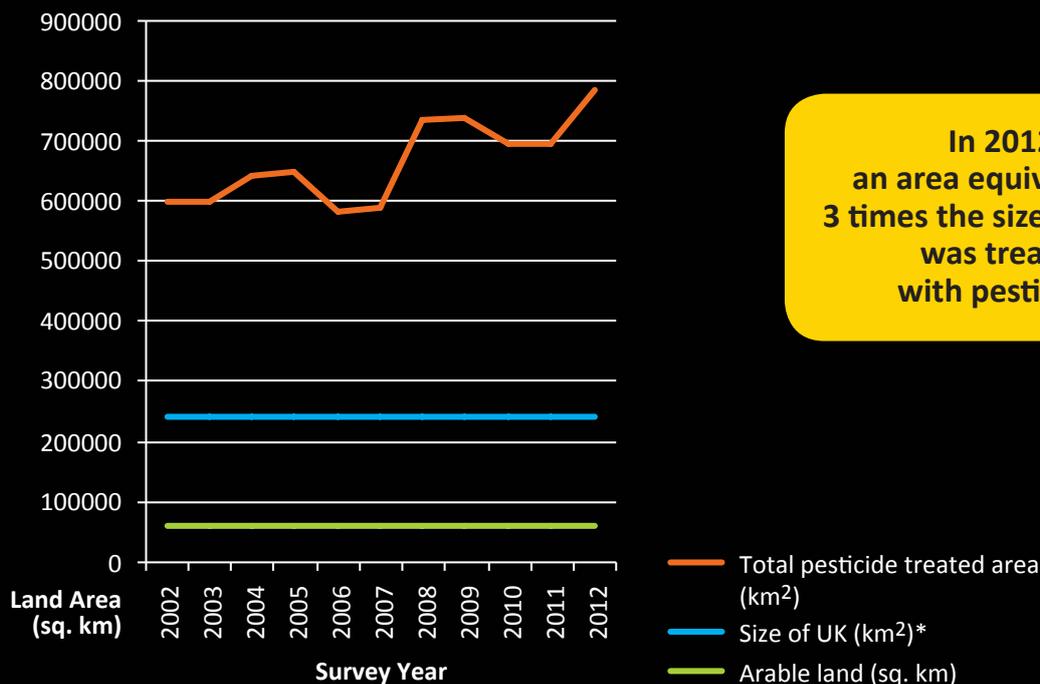
## PESTICIDES

National pesticide usage surveys show that the area of land treated with pesticides in the UK has been continuously rising in recent decades (see graph), as stated by the Government in its report on the sustainable use of pesticides.

In 2012, a land area (sq. km) equivalent in size to more than 3 times the UK's total land area (13 times the area of arable crops) was treated with pesticides. This figure reflects the fact that fields are treated more than once (i.e. if a 5 hectare field is sprayed twice, the treated area is 10 hectares).

In 2010 alone, the total crop area treated with pesticides was 74% of oilseeds, 80% of peas and beans, 86% of strawberries, 77% of top fruits and hops and 71% of soft fruits. These are all insect-pollinated (with the exception of hops). The multiple application of pesticides meant that this land area was treated several times over.

This highlights the urgent need for farming methods which reduce reliance on pesticides to be supported by the Government.



**In 2012,  
an area equivalent to  
3 times the size of the UK  
was treated  
with pesticides**

<https://secure.fera.defra.gov.uk/pusstats/index.cfm>

\*source: <http://data.worldbank.org/indicator/AG.SRF.TOTL.K2>  
<http://www.tradingeconomics.com/united-kingdom/land-area-sq-km-wb-data.html>

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## FARMING FOR POLLINATORS AND PROFIT

Peter Lundgren is a conventional farmer in Lincolnshire, where he grows combinable crops such as Oil Seed Rape and wheat. He recognises that promoting insects on his farm is important, both because insect pollinators boost yield in crops, and because naturally occurring predatory insects prey on crop pest insects, thus providing added benefits in the form of biological control. He strongly supports the concept of habitat provision to help boost these insects:



***“Habitat provision and profitable farming are mutually inclusive.”***

As well as habitat provision, Mr Lundgren believes that beneficial insects can be promoted by taking steps towards the more sustainable use of agrochemicals. Just like 95% of UK arable farmers, he uses agrochemicals on his farm, and is faced with the challenge of adapting his farming in order to mitigate the impact of pesticides on bees and beneficial insects, while maintaining the profitability of his business.

Mr Lundgren calculated what the economic consequences of giving up the use of bee-harming neonicotinoid pesticides on his farm would be, before they were restricted by the EC in 2013. He quickly realised that the losses forecast by the agrochemical industry were dramatically overstated.

The move cost him £2.20/ha in Oil Seed Rape (OSR). This compares with the £230 industry estimation. He saved £13/ha in wheat instead of an industry-predicted £225/ha loss.

This highlights how the lack of independent advice available to farmers is impeding progress on the path to pollinator-friendly farming. Advice on pesticides is currently based around a culture of high pesticide use as an insurance measure against pest attacks, rather than the idea that farmers should monitor crops for pests, and only use pesticides when the need occurs. This culture benefits the agrochemical industry alone.

***“The costs of this culture are paid by both farmers and wild pollinators.”***

Mr Lundgren believes that farmers need independent advice (many agronomists are employed by the agrochemical industry) on the real economic benefits resulting from farming more sustainably.

Currently there is not enough advice available on novel farming systems which would promote on-farm insect populations or enough innovation in the techniques used.

The Government plays a big role in providing this support and knowledge.

***“I’m confident that it is possible to mitigate the impact of my pesticide regime on beneficial insects without reducing yield and profitability, however I need a lot of support from the Government and our research institutes in the longer term to deliver the novel farming systems including IPM, the novel conventionally bred plant traits, and the novel chemistry that will create a whole farmed environment that is safe for bees and pollinators.”***

## CONSERVATION OF NATURAL HABITAT AND SPECIES

### Recommendations for the Government:

- Introduce more measures to protect and build wildlife corridors and increase landscape scale connectivity in both rural and urban landscapes;
- Introduce legal measures to protect habitats that support pollinators, such as brownfield sites and the remaining wildflower meadows and woodlands;
- Encourage and direct funding towards projects – both community-based and commercial – which create pollinator habitat in cities and towns;
- Take action to protect, restore and expand protected natural areas including National Parks, Sites of Special Scientific Interest (SSSIs), Area of Outstanding Natural Beauty (AONBs), National and Local Nature Reserves, parks, gardens and green belt areas which encompass pollinator habitat. These must not be threatened by regulatory changes;
- Increase the number of remaining meadows that are designated as SSSIs;
- Ensure that there is funding for species recovery work to save the most endangered pollinator species from extinction.

Pollinating insects are a diverse group of animals with equally diverse habitat requirements, which can vary seasonally. Regulation to protect all wildlife and its habitat is essential for maintaining the food, shelter and movement of pollinators. Implementation of England's Biodiversity Strategy 2020 was rated as "failing" by Wildlife and Countryside Link's Nature Check 2013, while the 2011 UK National Ecosystem Assessment showed that 30% of our natural services were in decline. Approximately 250 pollinator species are listed on the UK Biodiversity Action Plan priority species lists; however, only a few of these are protected under the NERC Act 2006 (see box on page 6). 97% of wildflower meadows have been lost in the UK, which is prime pollinator habitat<sup>48</sup>. Therefore more meadows should be listed as SSSIs.

It is clear that existing regulation for biodiversity remains too weak and needs to be improved especially as it has been found that regulation which protects biodiversity is extremely cost-effective, yielding far more economic benefits than costs (nearly nine times more in the case of the legal protection for SSSIs<sup>49</sup>).

As well as economic benefits, creating and protecting pollinator habitat has wide-reaching societal benefits including improved landscape aesthetics (especially within cities) and opportunities for community-based projects, improving happiness and well-being<sup>50</sup>.



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## PLANNING

# Green infrastructure for pollinators

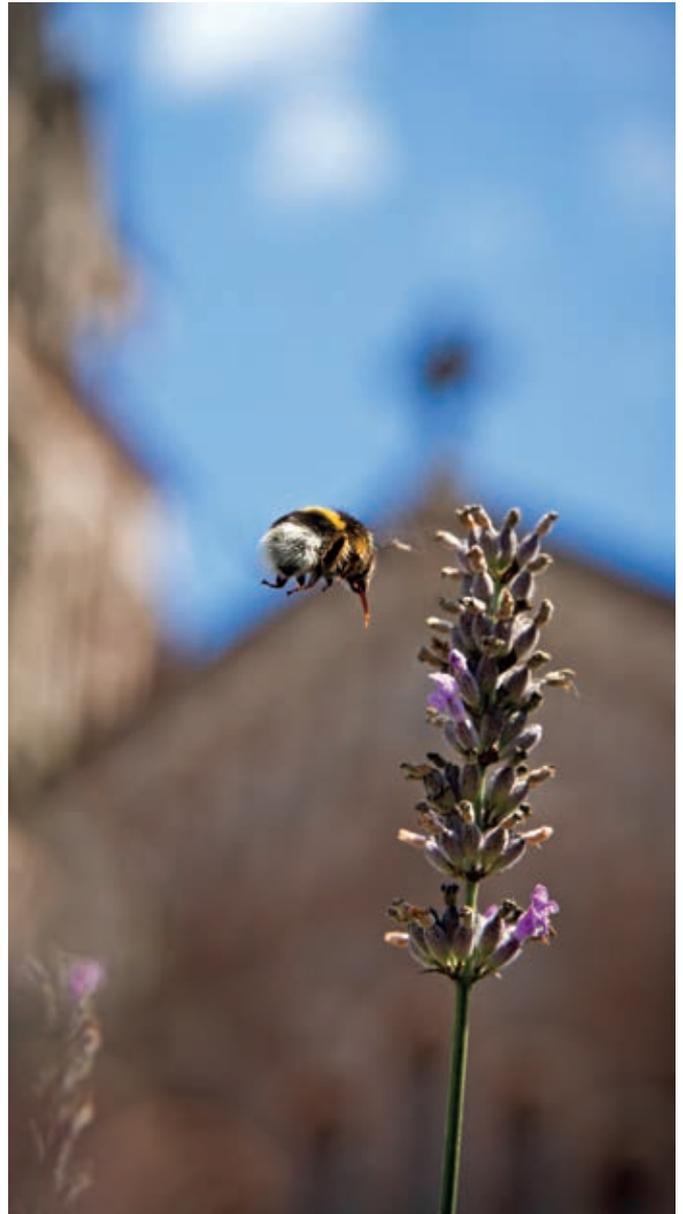
Promoting high quality green infrastructure within local planning would greatly improve habitat creation, preservation and connectivity for pollinating insects.

The Government has committed to favouring 'sustainable development' in planning procedures in its National Planning and Policy Framework (2012). The NPPF does not currently ensure that economic needs are balanced or integrated with environmental ones; its overall thrust is to prioritise easing development for economic growth without certainty that development will take place in wildlife-friendly and environmentally responsible ways<sup>51</sup>. The Government presumes that if a scheme is approved then that qualifies as 'sustainable development' even if the development damages or removes natural habitat.

Furthermore, the NPPF does not oblige local authorities to prioritise quality green infrastructure in planning and does not recommend space designations which are specifically for pollinators. And at the beginning of 2015 it scrapped guidance on green infrastructure, downgrading its importance in planning. This is despite increasing evidence of the multiple benefits of incorporating green infrastructure into development, from flood alleviation to improved well-being and adaptation to climate change. The Government itself has acknowledged these benefits in its Natural Environment White Paper 2011, and the resulting 'Green Infrastructure Partnership'<sup>52/53</sup>.

The 'Local Green Space Designation' within the NPPF was cited by the Government as progress towards commitments to protect wildlife. However, its designation is subject to local planning authority discretion and its application can be very limited. For example, it must not interfere with development needs already identified by local planning<sup>54</sup>.

Development on brownfield sites is part of more efficient use of previously developed land, but these can be very important sites for pollinators and wildlife; they can be as species-diverse as ancient woodlands<sup>55</sup> and 50% of rare solitary bees and wasps have been found on them<sup>56</sup>. Sensitive, well-informed development of brownfield should be the approach taken.



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## Recommendations for the Government:

- Introduce measures to enhance protection of wildlife within development and planning policy, and complement existing environmental protections;
- Ensure local planning authorities give adequate weight to quality green infrastructure when applying the National Planning Policy Framework;
- Provide clearer guidance on when surveys for protected species are required for planning permission, to ensure consistency of interpretation by local authorities and to prevent planning permission from being granted without necessary surveys being carried out;
- Introduce policy which requires that brownfield sites be fully and independently assessed for their wildlife value before planning permission is granted;
- Work with all Government departments in Defra and beyond to deliver pollinator-friendly measures in infrastructure, especially Communities and Local Government, Transport and Defence;
- Ensure that changes to planning legislation and rules do not increase the likelihood of brownfield sites of high environmental value being damaged by development.

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# NATIONAL POLLINATOR STRATEGY

In November 2014, the Government produced its long-awaited National Pollinator Strategy (NPS) in response to growing public and political concern about the plight of bees and other pollinating insects. The NPS for England follows on from the lead taken in Wales with the 2013 Action Plan for Pollinators<sup>57</sup>. An All-Ireland Pollinator Plan was produced in July 2015.

The Bee Coalition believes that everyone has a role to play to help pollinators, but that the Government must take the lead. However, this leadership is lacking in the NPS, which mostly takes the form of pledges to provide guidance, advice to stakeholders and requests for voluntary action by others. There is a risk that existing projects will be used to demonstrate progress without the Government bringing anything new to the table. It is true that positive action for pollinators has been and is being taken by communities, businesses and local authorities. However, to be commensurate to the challenge of reversing pollinator decline this action must be scaled up and facilitated by the right policy framework.

Any strategy to protect pollinators must address the issue of risks from pesticides. Unfortunately, the NPS is especially weak in this area. Neither the NPS nor the UK's National Action Plan on pesticides contains targets, plans or measures to reduce the use of pesticides on farms, in horticulture or in gardens, despite the UK's legal obligation towards achieving sustainable pesticide use (EU Directive 2009/128/EC).

There is an urgent need for more research on the impacts of pesticides, particularly the combined effect of different chemicals used in farming, horticulture and domestic gardens and amenity uses such as in parks and golf courses. The NPS does not address this issue, referring only to existing research projects which are designed to help pesticide companies meet regulatory data requirements for specific chemicals and do not address wider issues of pesticide impacts on pollinators.

Defra has committed to refresh the NPS by 2019.



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## Recommendations for the Government:

### THE NPS SHOULD BE IMPROVED TO:

- Set up, fund and promote a new National Pollinator Monitoring Scheme to establish a measure of pollinator abundance; to also involve more people in recording and to support professional and amateur expertise;
- Build on the existing research to close knowledge gaps in pollinator ecology, declines and beneficial management;
- Ensure the area of extensive, connected flower and shelter-rich habitat in and across the countryside, farmland and urban landscapes is increased;
- Support, promote and encourage public engagement in pollinator conservation ensuring they obtain advice on the latest research and understanding and how to apply this in their activities;
- Address farmed bee health issues, and build on the Healthy Bees Plan;
- Be reviewed at an early stage before the current deadline of 2019 especially to assess how well the farming sector is performing;
- Given the pace of new evidence into the risks to pollinators and other wildlife from systemic pesticides, refresh the NPS with a clear commitment to cut pesticide use and find safer alternatives.

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# KEY POLICY RECOMMENDATIONS

The UK Government's role is pivotal in the protection of our pollinators through its power to introduce and implement pollinator-friendly policies and schemes, and this aim should be high on its priority list. Policy actions must be uncompromising and focused on the need for pollinator protection in the short, medium and long term.

The Government should be led on specialist issues by independent science, expertise in conservation bodies and parliamentary committees and public desire for action. Decisions concerning the habitat and health of pollinators must be based on the best available evidence, and when evidence is incomplete must be guided by the precautionary principle.

**1. COMMITMENTS. Fulfil promises made nationally and internationally to protect biodiversity including:**

- Introducing measures to protect wildlife and promote green spaces and wildlife corridors in order to halt the loss of habitats and restore biodiversity;
- Promises made as a signatory of the Convention on Biological Diversity, especially meeting 2020 targets to reverse the decline of nature.

**2. UNDERSTANDING POLLINATORS.** Implement research and monitoring to bridge knowledge gaps in pollinator losses, ecology and distribution while taking steps to improve the health of managed bees.

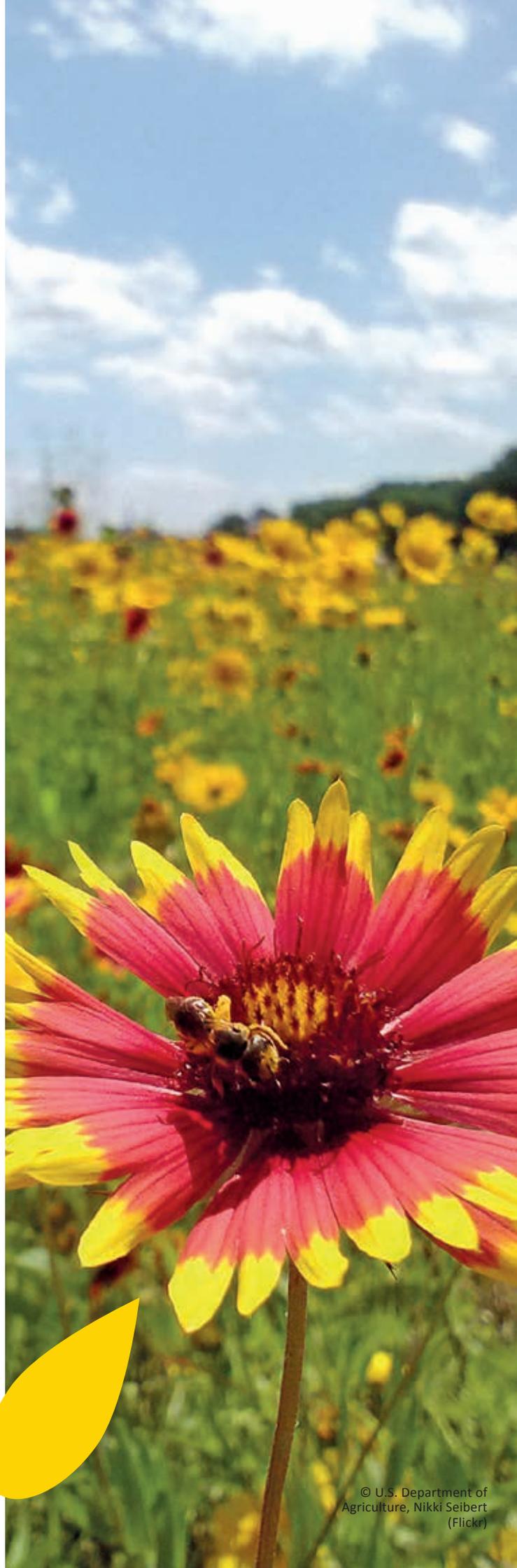
**3. FARMING FOR POLLINATORS.** Incentivise the widespread management of agricultural land for pollinators including organically managed farmland and the development of landscape-wide habitat networks.

**4. AGROCHEMICALS.** Ensure that the present ban on three neonicotinoids on crops attractive to pollinators is made permanent and fully implemented. Additionally extend the ban on these neonicotinoids to use on all other crops in light of evidence of contamination to wildflowers and exposure to other wildlife.

**5. BIODIVERSITY CONSERVATION.** Introduce more measures to protect and extend wildlife in planning, as well as protect biodiverse sites. Create wildlife spaces and corridors and legally protect threatened pollinator species.

**6. PLANNING.** Retain the status of protected areas. Introduce policy which avoids development on pollinator habitat area, which generates high quality green infrastructure, including in development, and which gives stronger protection to pollinator habitats, including undesignated sites.

**7. NATIONAL POLLINATOR STRATEGY.** Ensure that the NPS is kept up to date so that it is robust, informed by the latest evidence, creates new policy while linking existing policies and actions, and addresses the wide spectrum of pollinator issues explained in this report.



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A photograph of a sunset with silhouetted plants in the foreground. The sun is a bright, glowing orb in the center-left, casting a warm, golden light across the sky. In the foreground, several tall, thin plants with clusters of small flowers are silhouetted against the bright background. The overall mood is serene and natural.

*"Bees and other wild pollinators are fascinating,  
beautiful, and vital to our food production.  
They have pollinated our crops for millennia;  
now it's time to return the favour."*

Dave Goulson, 2014