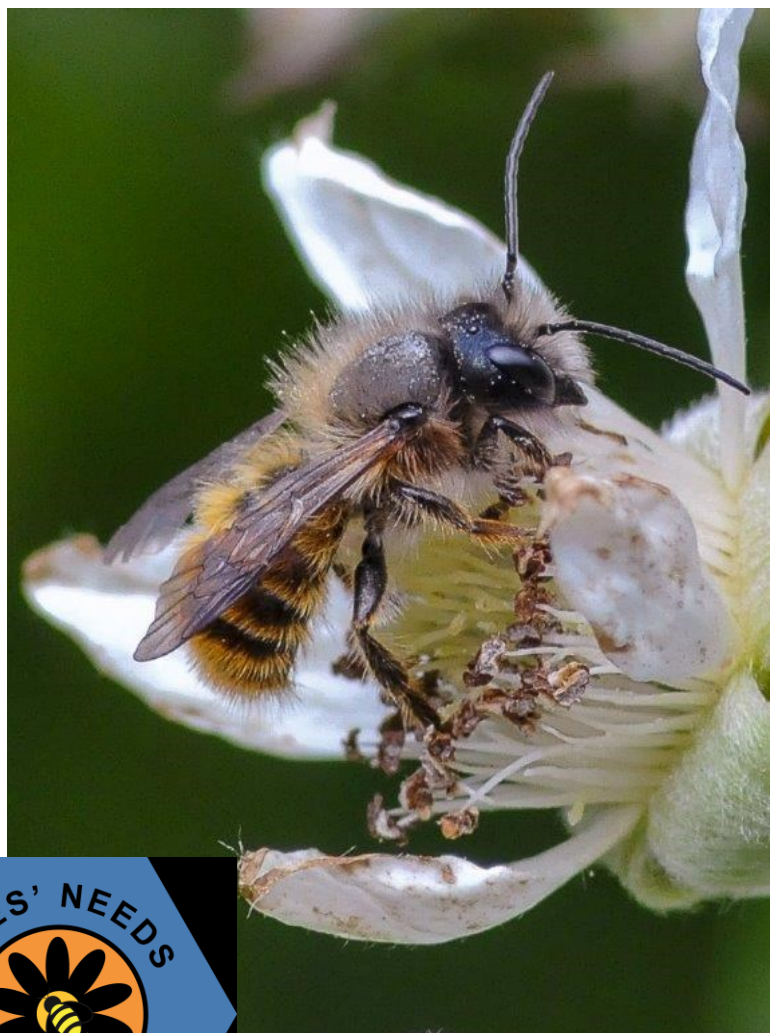




Department
for Environment
Food & Rural Affairs

National pollinator strategy

Progress report 2016





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Introduction

We all have an important role to play in supporting pollinators. It is only through the actions of everyone that we can help pollinators thrive across our countryside and urban environment. Through these actions we can help ensure that this generation will be the first to leave the environment in a better place than we found it.

We are developing an ambitious 25 year plan for the environment. This will provide the long-term direction for protecting and enhancing our environment in an integrated way. Providing support to the 1500 species of insect pollinators plays an essential role in helping our environment and contributing to food production.

We have come a long way over the last two years since the National pollinator strategy was first launched. It has been through the hard work of many of the organisations recognised in this report that the 23 policy and 11 evidence actions have progressed over the last twelve months. The following sections reflect some of the key achievements made by organisations working collaboratively (included in further detail in the Appendix). This is not an exhaustive list; there are many others who are doing incredible work to support our pollinators.

Farmland

The farming community has an important role to play in supporting pollinators as farmland covers over 70% of the UK. Over the last twelve months Natural England has continued to work closely with the farming community and stakeholders to promote uptake of the new Countryside Stewardship Scheme (which is replacing Environmental Stewardship, the long-standing agri-environment scheme).

Countryside Stewardship includes a Wild Pollinator and Farm Wildlife Package which has attracted significant uptake among Mid-Tier agreements. The package was carefully designed with a range of stakeholders, and was based on the best available evidence¹. 40% of Mid-Tier agreements fully meet the requirements of the Wild Pollinator and Farm Wildlife package. As a result, farmers are putting in place measures to provide year round support for pollinators such as creating new pollen and nectar habitats on their land. The Bumblebee Conservation Trust are working with farmers in areas of high importance for conservation-priority bumblebee species to ensure the Package measures are carried out in ways which are of maximum benefit to bumblebees.

¹ Dicks, L.V., Baude, M., Roberts, S.P.M., Phillips, J., Green, M., C., C. (2015) How much flower-rich habitat is enough for wild pollinators? Answering a key policy question with incomplete knowledge. *Ecological Entomology* 40 (S1), 22-35.

Over the last twelve months, £85,000 has been awarded by Defra through the Landscapes for Wild Pollinators Initiative. This supports four flagship projects that partner specialist conservation advisers with major land owners to provide advice on habitat management for pollinators at a landscape scale. For example; Buglife, has partnered with Natural England and Farmcare to deliver pollinator habitat across Kent and Sussex, identifying key concentrations of rare pollinators. Another initiative supported by Defra's Landscape for Wild Pollinators Initiative is B-Lines, a scheme to restore a network of wild flower habitats, run by Buglife. This year B-Lines have involved over 120 partner organisations, and have mapped a network that stretched from the Scottish Border to the South Coast. In recognition of the progress being made B-Lines won an international award from the European Landowners' Organisation

For farms not signed up to Countryside Stewardship, the Campaign for Farmed Environment (CFE) continues to promote voluntary action and has run farmer events across England focussing on pollinators and providing guidance. In summer 2016, 32 events were attended by 434 farmers and advisers. CFE has also worked with industry partners to provide and promote subsidised CFE pollinator seed mixes for 850 hectares of land.

The Agriculture and Horticulture Development Board has continued to produce practical guidance to improve growers' understanding of Integrated Pest Management. The Voluntary Initiative² continues to promote an Integrated Pest Management Plan and has seen an increase over the last year of farmers completing the plans from 9,400 to just over 15,000 (representing around 3.5 million hectares of managed farmland). The Voluntary Initiative has also launched BeeConnected (a web based tool) to improve communication between farmers and beekeepers.

Bee farmers have moved more than 40,000 hives to crops as managed and targeted pollination plays an important role in sustainable food production improving farm yields and crop quality. This figure is an increase on previous years and we believe the National Pollinators Strategy is leading to farmers valuing pollination services more.

Towns, cities and countryside

Over the last twelve months the National pollinator strategy has been implemented in a number of ways across towns, cities and the countryside. It is now referenced in planning guidance, supported by the Building Research Establishment Environmental Assessment Method.

£20,000 has been awarded by Defra to fund Local Nature Partnership pollinator projects in five areas across the country. These projects have supported a number of different initiatives with a range wide of sectors including schools, community groups and

² The Voluntary Initiative is sponsored by farming and crop protection industry to minimise the environmental impacts from pesticides

businesses. The aims of the projects vary from improving local habitats and recording pollinators to examining how pollinators use arable crops.

In Bristol a Defra-supported project led by the University of Bristol created the first pollinator strategy to be developed and implemented at a local level. The Greater Bristol Pollinator Strategy was developed by a partnership comprising the University of Bristol, University of the West of England, Bristol City Council, South Gloucestershire Council, Avon Wildlife Trust, Buglife, Bristol Friends of the Earth and Bee Bristol.³

Urban environment

A range of activity has helped promote pollinators in the urban environment. This has included Buglife's Brownfield Hub which provides advice to Brownfield users. Buglife has also successfully introduced Urban Buzz to four cities creating habitat and training people in land management practices this initiative has involved almost 3,000 volunteers restoring nearly 100 Ha of pollinator habitat across 220 sites. Polli:nation has worked with 250 schools to promote management for pollinators.

The Bumblebee Conservation Trust have partnered with the University of Bournemouth to set up the Pollinator Exchange (www.pollinatorexchange.org), a repository of best practice and general advice for the conservation of pollinators in urban environments.

A Policy and Practice Note on managing urban areas for insect pollinators written by researchers involved in the Urban Pollinators Project was published by the Living with Environmental Change Network⁴.

Countryside

The Bumblebee Conservation Trust has actively taken forward projects along the Kent coastline and in south-west England to provide increased and enhanced habitat for rare bumblebees, including the reintroduction of *Bombus subterraneus* at Dungeness. Additionally, they have worked in partnership with a number of organisations nationwide as well as a Pollinating the Peaks project which seeks to increase our understanding of Bilberry Bumblebee populations as well as wider public awareness of pollinators.

³ Further information on the Greater Bristol Pollinator Strategy can be found at www.getbristolbuzzing.org

⁴ Baldock, K.C.R., Goddard, M.A., Kunin, W.E., Potts, S.G., Stone, G.N. & Memmott, J., (2015) 'Managing urban areas for insect pollinators' Living With Environmental Change Policy and Practice Note No. 20. <http://www.nerc.ac.uk/research/partnerships/ride/lwec/ppn/ppn20/>

Across government and delivery bodies

Over the last twelve months a number of activities have ensured the National pollinator strategy is implemented across many parts of the government estate as well as within government policy and delivery work.

Sympathetic management for pollinators across the Defra estate has resulted in some sites seeing the return of wild flowers such as bee orchids. Productive beehives at the London and York offices continue to produce Defra honey. The Environment Agency is also in the process of implementing the Strategy into the management of its flood defence assets such as sea walls and river embankments. For example pollinator forage has been developed on Essex sea walls as a result of deliberate intervention, benefitting species of bumblebee such as the moss and brown-banded carder bees.

Natural England established the Linear Infrastructure Network in 2015 to promote and extend best practice in soft estate management to enhance biodiversity (including pollinators) along transport corridors. This group brings together Natural England, Network Rail, and Highways England with conservation charities such as the Wildlife Trusts, RSPB and Plantlife.

Highways England published its Biodiversity Plan in June 2015 which set out its commitment to the National pollinator strategy to create '3500 hectares of grassland rich in wildflower species and therefore supporting a wide range of pollinating insects' by 2020.

Forestry Commission England has further embedded the National pollinator strategy within its delivery. It has promoted messages about the importance of woodland for bees and closely linked these to woodland management and felling licences. The UK Forestry Standard is in the process of being refreshed and will include references to pollinators in the open and edge habitat section of the biodiversity guidelines.

The Ministry of Defence has initiated a number of pollinator projects, primarily driven through its local Conservation Groups, on its defence estate that covers approximately 1% of the UK's land mass. The Ministry of Justice (MOJ) has drafted its own Pollinator Strategy for the MoJ Shared Estates and assigned 2016 "MOJ Year of the Pollinator". It has Memorandum of Understanding with a number of Wildlife Groups and participates on a number of projects such as 'Pollinating the Peaks' and 'Kent Coastal project'. It has engaged the Bumblebee Conservation Trust to run wildlife gardening and Bee ID training for offenders and prison staff. The Department for Education supported Defra's 'Build a Bee Hotel' education pack for teachers planning activities for pupils moving up to secondary school.

The Royal Parks (TRP) produced a pollinator strategy⁵ in 2016. This year TRP has carried out habitat improvement for pollinators in a number of parks including new wildflower meadow areas (1600 sq. m) at St James's Park; a new one-acre Coronation meadow in Green Park, created in partnership with Plantlife; and replacing non-native conifer hedging with native hedgerow species to provide forage for pollinators in Greenwich Park

Pests and diseases

Defra's Bee Health Policy team have this year developed new contingency plans for the Small Hive Beetle and the Asian Hornet. In September 2016, following a positive identification of the Asian Hornet in Gloucestershire, the National Bee Unit enacted its new contingency plan. Surveillance techniques were used to identify the location of the nest which was removed for analysis. All lessons learned will be taken forward to improve our capability to deal with future outbreaks. National Bee Unit inspectors continue to provide free training to beekeepers on the identification and treatment of bee pests and diseases.

Awareness raising

It is through raising awareness that we can encourage others across all parts of our society to take actions to help pollinators thrive. Defra has worked closely with the members of the Pollinator Advisory Steering Group (PASG) to deliver two successful awareness raising events over the last year.

Bees' Needs Week took place from 9 to 17 July 2016 and included Defra and PASG activity to showcase best practice and inspire audiences to take action to support pollinators. Successes included: a social media campaign of 35 active partners including PASG members with videos, factsheets and links to events; 60 user-submitted questions answered by PASG experts in the first #BeesNeeds tweetathon; and a visit by Rural Affairs Minister Lord Gardiner to Hertfordshire Local Nature Partnership pollinator project to meet local school children and their school pollinator gardens.

Bees' Needs Champions 2016 was held on 8 November at Kew Gardens. The PASG played a pivotal role in shaping the event through the pollinator competitions that they ran and supported. Lord Gardiner highlighted the exemplary work to support pollinators across categories that included: farming, construction, schools, youth and other community groups as well as local authorities. This celebration of our Bees' Needs Champions was widely supported through social media as well as gaining the attention of the press. It emphasised the importance of supporting pollinators through the winter months.

⁵ The Royal Parks Pollinator Strategy is available from: <https://www.royalparks.org.uk/park-management/park-strategies/the-royal-parks-pollinator-strategy>

PASG members have also played a significant role in raising awareness over the last twelve months. Some of the activity includes: the Bumblebee Conservation Trust's Making a Buzz for the Coast, Bee Wild West Wales, Thurso: Gateway to the Great Yellow and Pollinating the Peak projects, Buglife's advice to urban land managers through Urban Buzz hub and advice to Schools via the Polli:Nation project; RHS' continued promotion of the use of 'Perfect for Pollinator' plants in gardens and running a Garden pollinator plant survey; the World Bee Project held school visits and educational outreach at Kew Gardens; and Friends of the Earth's Bee Cause campaign has resulted in 15,000 people capturing data and images of pollinators in a citizen science exercise (helping gather information on bee species and expand knowledge of pollinators).

The Bumblebee Conservation Trust has also trained around one thousand people in bumblebee ecology, identification and ecosystem services provision during 2016.

Improving evidence

In 2016, Defra established a monitoring coordination group with representation from the four UK countries, the Republic of Ireland and voluntary and research organisations. The aim of the group is to improve coordination of pollinator monitoring, and to develop a funding partnership for new activity to support each of the country strategies and action plans for pollinators.

Defra, along with JNCC and the Welsh government have funded a consortium (led by CEH and including the major UK pollinator-focussed organisations) to carry out a three-year programme of pollinator monitoring to support and build on existing volunteer surveys. This will build a clearer baseline and a methodology for analysis of this initial trend data to demonstrate how insect pollinator populations are changing in the UK. The work will also utilise monitoring data to improve our understanding of the relationship between pollinators and pollination services and our understanding of threats to pollinators.

Defra with the Natural Environment Research Council has funded a postdoctoral fellowship at the Natural History Museum in London on genetic sequencing and taxonomy of UK insect pollinators.

Standards of data collection, management and analysis in volunteer recording schemes have continued to improve over the last year through Implementation of the National Biodiversity Network Strategy 2015-2020, led by the NBN-Trust; and investment by the Joint Nature Conservation Committee (JNCC) and the Centre for Ecology and Hydrology (CEH) in biological recording and analysis. The JNCC-CEH investment has resulted in the publication of an initial indicator of pollinator population change.

There has been a range of primary research on the relationship between pollinators and pollination services in the crop production, this includes: Insect Pollinator Initiative⁶ who funded "Sustainable Pollination Services for UK Crops"; Natural Environment Research Council funded a landscape scale assessment of Biodiversity and Ecosystem Services

⁶ BBSRC, Defra, NERC, the Scottish government and the Wellcome Trust

'Wessex BESS'; the Inter-governmental Platform on Biodiversity and Ecosystem Services commissioned a thematic assessment of "Pollinators, Pollination and Food Production" as well as EU funded research.

The Bumblebee Conservation Trust have continued to invest in their standardised-monitoring programme BeeWalk, aimed at bumblebees nationwide, and the programme has grown to include over 350 active transects during 2016. The Trust have trained more than 1000 people in bumblebee identification and recording skills as part of this programme. Analysis of early results has begun and will be published during 2017.

Royal Botanic Gardens Kew has also carried out research on plant –pollinator interactions at which help develop strategies for enhancing pollination services. Kew has also led research into the nutritional quality of different flowers for pollinators.

Social research has been commissioned and funded by Defra entitled "*Pollinating insects: what do they mean to people and why does it matter?*" The results of this research will be published in early 2017 and will help to inform communications and pollinator awareness raising campaigns.

Next steps

We have made excellent progress, in partnership with a number of others, since the National pollinator strategy was launched in 2014. We recognise that there are further opportunities to strengthen this work over the remaining eight years of the strategy. We will continue to work closely with our Pollinator Advisory Steering Group to shape and adapt our pollinator actions as our understanding advances.

We continue to support pollinators in an international arena. In particular welcoming the recent (UN led) IPBES assessment on pollinators⁷ and will continue to highlight the best practice action taken by the UK; encouraging others to follow our lead. At the 13th Conference of the Parties of the Convention on Biological Diversity (CBD CoP13) in Cancun, Mexico, December 2016, 13 countries signed a declaration indicating their willingness to take action nationally and internationally on pollinators⁸. The signatories are Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, Peru, Slovenia, Spain, the Netherlands, United Kingdom and Uruguay. Of these, UK and France already have National Pollinator Strategies through which many actions are promoted and encouraged that will improve conditions for wild and managed pollinators in farmed and urban areas. The other 11 countries are interested or actively developing national pollinator strategies. This declaration will help them learn from each other and shape the strategies.

⁷ IPBES, (2016) Summary for Policymakers of the Assessment Report of the Inter-governmental Science-Policy Platform on Biodiversity and Ecosystem Services on Pollinators, Pollination and Food Production, in: Potts, S.G., Imperatriz-Fonseca, V.L., Ngo, H.T., Biesmeijer, J.C., Breeze, T.D., Dicks, L.V., L. A. Garibaldi, Hill, R., Settele, J., Vanbergen, A.J., Aizen, M.A., Cunningham, S.A., Eardley, C., Freitas, B.M., Gallai, N., Kevan, P.G., Kovács-Hostyánszki, A., Kwapong, P.K., Li, J., Li, X., Martins, D.J., Nates-Parra, G., Pettis, J.S., Rader, R., Viana, B.F. (Eds.). Secretariat of the Inter-governmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany.

⁸ <http://promotepollinators.org/>.

Our next key steps will be to:

- implement our monitoring programme for pollinators and pollination services;
- continue to evaluate the success of National pollinator strategy outcomes in particular developing an agreed set of measures against which we can track our progress; and
- consider emerging evidence to shape and adapt our future pollinator actions to inform any future review of the National pollinator strategy.

Contributors

Many thanks to the contributors to this report who include:

BREEAM, Buglife, Bumblebee Conservation Trust, Campaign for the Farmed Environment, Department for Culture, Media and Sport, Environment Agency, Forestry Commission, Friends of the Earth, Health and Safety Executive, Highways England, Ministry of Defence, Ministry of Justice, National Farmers' Union, Natural England, Royal Horticultural Society, Royal Botanic Gardens, Kew, The Royal Parks, UEA, the University of Bristol, University of East Anglia, the World Bee Project, The Bee Farmers Association.

Appendix: Summary of progress against National pollinator strategy actions

Table 1: progress implementing National pollinator strategy – November 2015 to November 2016

Lead/others	Progress Nov 2015 – Nov 2016	Next Steps
1. Promote the Bees' Needs simple actions to all land managers through diverse communication channels		
Defra, and the Pollinator Advisory Steering Group (PASG)	<ul style="list-style-type: none"> i. The Pollinator Advisory Steering Group (PASG) Communications sub-group has continued to work collaboratively to deliver communications to promote the NPS. The group has shared information about their organisations' communications activities, such as events, social media campaigns, publications and best practice. ii. In July 2016, Defra and PASG members held a successful Bees' Needs Week. It included the first #BeesNeeds tweetathon with 60 user-submitted questions answered by PASG experts. There was also substantial positive media coverage. YouGov polling showed that 52% of people were taking actions to help bees and other pollinators, exceeding the 50% target iii. Advice available through Buglife's B-Lines to land managers on focused on areas where there is habitat connectivity opportunities available https://www.buglife.org.uk/campaigns-and-our-work/habitat-projects/b-lines iv. Specific advice to Urban Land managers available through Urban Buzz hub: https://www.buglife.org.uk/urban-buzz v. Specific advice available to Schools was delivered via Polli:nation project: http://www.polli-nation.co.uk/ vi. Royal Botanic Gardens Kew held a number of outreach activities that included: Kew Pollinator day 29th Oct 16 (with Reading 	<ul style="list-style-type: none"> i. We will use actionable insight from the full evaluation pack to inform ongoing campaign activity, focusing on milestones including Bees' Needs Champions awards and APHA's annual beehive count. ii. This will inform Defra and PASG members continuing social media campaign and communications action, to be reported to the PASG Communications Working Group. iii. Stakeholders will develop communications opportunities to be shared with the PASG communications sub-group, which underpin the communications plan (e.g. promotion of seasonal tips, pollinator-themed events or awards, apps for logging actions on a map/photo records using GPS/GIS, and indicators of sites with pollinator-friendly planting). iv. WBP partnering project on 'Pollinator Friendly' Ecological Consultancy group, to implement eco-label for habitats and products http://worldbeeproject

University) that promoted the UN IPBES report on Pollinators, Pollination and Food Security; regular public pollinator talks over the summer to draw attention to pollinator diversity and its importance in underpinning ecosystem health and resilience; and a wide range of promotional and media activity associated with The Hive at Kew including 10 minute slot on Gardeners Question Time. <http://www.bbc.co.uk/programmes/b07j7nv5>

- vii. The RHS continues to promote the use of 'Perfect for Pollinator' plants in gardens <https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators>. It has also held specific events to support pollinators such as 'Wild About Gardens Week' <http://www.wildaboutgardensweek.org.uk/> and ran a Garden pollinator plant survey <https://www.rhs.org.uk/science/science-blogs/science/june-2016/pollinator-survey>
- viii. The Wildlife Gardening Forum <http://www.wlwf.org/> ran a citizen science survey of which plants garden plants were visited by pollinators.
- ix. The World Bee Project (WBP) has worked to deliver communications to promote the National pollinator strategy, by launching a social media campaign, sharing information about the Bees' Needs actions through school visits and educational outreach at Kew Gardens.
- x. Specific advice for farmers, growers advisers and agronomists from the Campaign for the Farmed Environment and the National farmers Union <http://www.voluntaryinitiative.org.uk/environment/pollinators/>; <http://www.cfeonline.org.uk/campaign-themes/pollinators/>; <http://www.nfuonline.com/cross-sector/environment/bees-and-pollinators/>

2. Develop and promote web-based detailed Bees' Needs advice for land managers

**Fera,
Natural
England
(NE), Defra,
scientists,
PASG**

- | | |
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| <ul style="list-style-type: none">i. Defra published an urban environment focused information sheet that adds to the suite of six information sheets available from: www.beesneeds.org.uk . Easy to read summaries of the advice is available from: https://www.flickr.com/photos/defragovuk/sets/72157670113614032ii. Buglife has made a range of advice sheets are available covering the farmed and urban environment, resulting in better management of habitats in the landscape: https://www.buglife.org.uk/advice-and-guidance-2 and https://www.buglife.org.uk/campaigns-and-our-work/habitat-projects/b-linesiii. Defra developed a GOV.UK webpage during Bees' Needs Week.iv. The WBP has developed a website section on the Bees' Needs, actions contained in the National pollinator strategy: http://worldbeeproject.org/action/v. Specific advice for farmers, growers advisers and agronomists from the Campaign for the Farmed Environment and the National farmers Union
http://www.voluntaryinitiative.org.uk/environment/pollinators/;
http://www.cfeonline.org.uk/campaign-themes/pollinators/;
http://www.nfuonline.com/cross-sector/environment/bees-and-pollinators/ | <ul style="list-style-type: none">i. Defra will continue to revise and refresh its complement of information sheets.ii. Defra will continue to review and expand its advice on Bees' Needs by consulting with PASG members and developing its online accessibility.iii. PASG organisations will continue to promote the Bees' Needs '5 Simple Actions' through social media campaigns and educational outreach. |
|--|---|

3. Members of the public to consider growing a range of plants to provide pollen and nectar sources for pollinators

<p>Members of the public</p> <p>Defra and members of PASG to play a key role in engaging with the public</p>	<p>i. Defra created an education pack for teachers planning activities for pupils moving up to secondary school on how to build a simple bee hotel. This project was aimed at school pupils and families to support pollinator populations; the resource pack is available from: https://www.tes.com/teaching-resource/build-a-bee-hotel-11269417.</p> <p>ii. Friends of the Earth’s Bee Cause campaign held the 3rd Great British Bee Count. 15,000 people helped capture point data and images of pollinators in citizen science exercise helping people to gather information on bee species and their location while expanding their knowledge of bees and other pollinators.</p> <p>iii. WBP has promoted pollinator-friendly and nectar rich planting best practices to the public; schools; as well through local projects such as within the Well Street community (Hackney).</p>	<p>i. Friends of the Earth’s Bee Cause campaign are planning the 4th Great British Bee Count to deepen public knowledge of and action for bees and pollinators.</p> <p>ii. PASG organisations will continue outreach work with communities to support pollinators.</p>
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4. Improve knowledge sharing of pollinators’ needs between scientists, conservation practitioners and NGOs.

<p>Defra, NE, scientists and NGOs</p>	<p>Defra, NERC and the University of Bristol (Dr Katherine Baldock) carried out a one-day workshop: “Knowledge Exchange: urban grassland management and creating space for pollinators”. There were 50 attendees from Defra, local government, NGOs, academia, industry, and highways sectors. The event helped:</p> <ul style="list-style-type: none"> - Identify and share best practice examples of the management of roadside verges and amenity grassland; - Identify how organisations could collaborate effectively. <p>Blogs written about the event: https://jeffollerton.wordpress.com/2016/03/21/urban-pollinator-knowledge-exchange-summary-bristol-22nd-february/</p>	<p>Defra, Academics and PASG members will consider further opportunities for knowledge sharing during 2017.</p>
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<https://bumblebeeconservation.org/news/anthonys-blog/the-trials-and-tribulations-of-managing-grasslands-for-pollinators>

<http://www.ceh.ac.uk/news-and-media/news/new-practical-guide-habitat-creation-and-management-pollinators>

5. Promote opportunities for farmers to support pollinators through new Common Agricultural Policy (CAP) measures and voluntary actions.

5.1 Defra, NE, Campaign for the Farmed Environment (CFE), National Farmers Union (NFU), supply trade and NGOs

CAP measures

- i. The launch of the new Countryside Stewardship scheme (CS) in July 2015 in England with land management options to help wild pollinators and farm wildlife thrive across the English countryside. Including a CS Wild Pollinator and Farm Wildlife package designed to deliver the life-cycle habitats needs of wild pollinators throughout the year. In particular providing nesting, shelter, hibernation, and pollen and nectar habitats.
- ii. Launch of a geographically defined CS national targeting framework with priority species, wild pollinators and farm wildlife at the centre of the approach
- iii. Natural England has actively promoted land management options for wild pollinators including promotion of the new CS Wild Pollinator and Farm Wildlife Package.
- iv. 40% of all Mid-Tier agreements with Jan 2016 start dates are delivering the WPFWP in full and over 60% of all agreements are putting in place CS land management options which benefit wild pollinators directly.
- v. The successful launch of new CS Facilitation Fund in 2015; helping land owners come together to deliver the CS schemes environmental objectives at a landscape scale. 49 CS Facilitation Fund projects are now live across England with farm wildlife and

5.2 Defra, NE, CFE, agronomist

- i. Continued promotion of the new Countryside Stewardship scheme to benefit wild pollinators
- ii. Continued promotion and targeting of the CS WPFWP across England
- iii. Continued application of the new CS Facilitation Fund in 2017

<p>s, NGOs, supermarket supply chains, farming reps</p>	<p>wild pollinator outcomes central to their success.</p> <p>Voluntary measures</p> <ul style="list-style-type: none"> i. CFE has promoted guidance agreed by all CFE’s farming and biodiversity organisations – see http://www.cfeonline.org.uk/campaign-themes/pollinators/ ii. The CFE guidance has been supported through farmer events across England focussing on pollinators. In addition messages about enhancing Ecological Focus Areas and retaining agri-environment land have been promoted in member publications, trade press, online and social media. iii. CFE has worked closely with industry partners to provide and promote subsidised CFE pollinator seed mixes for farmers. Three seed offers are now available: <ul style="list-style-type: none"> a. 350 hectares sold of the spring-sown ‘Operation Pollinator’ annual wildflower mix to provide food sources in the summer. b. 200 hectares sold of an autumn-sown ‘Bees ’n’ Seeds’ mix to provide late summer pollinator food and winter seed for farmland birds. c. 300 hectares sold of the ‘Field Margin’ mix including seed to create floristically enhanced buffers or field margins (supported by BASF and Limagrain who provided 300 hectare packs of seeds). <p>Guidance</p> <p>The Centre for Ecology and Hydrology and the University of East Anglia produced an LWEC Policy and Practice Note: Managing farmed landscapes for pollinating insects. This is available online at: http://www.nerc.ac.uk/research/partnerships/ride/lwec/ppn/ppn27/</p>	<p>Voluntary measures</p> <ul style="list-style-type: none"> i. Continue to prioritise communication on pollinator management to farmers and advisers. ii. World Bee Project potential engagement with solar farms industry about creating habitats for specific pollinator and plant species.
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6. Secure commitment from providers of advice to farmers to draw on Bees' Needs advice

<p>Defra, NE, CFE, agronomists, NGOs</p>	<ul style="list-style-type: none"> i. CFE has promoted the Online Training Module to farm advisers covering all aspects of farm management for pollinators. It has worked closely with CFE partners including BASIS, AIC and AICC to promote to farm advisers. ii. Buglife has provided advice throughout its B-Lines UK network to advise farmers on how to embed Bees Needs principles https://www.buglife.org.uk/farmland-advice iii. Specific advice for farmers, growers advisers and agronomists from the Campaign for the Farmed Environment and the National farmers Union http://www.voluntaryinitiative.org.uk/environment/pollinators/; http://www.cfeonline.org.uk/campaign-themes/pollinators/; http://www.nfuonline.com/cross-sector/environment/bees-and-pollinators/ 	<ul style="list-style-type: none"> i. CFE will continue to promote CFE online training on pollinator management to farmers and advisers.
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7. Develop and implement a programme of pollinator events on farms

<p>CFE (funding confirmed to end of 2015)</p>	<ul style="list-style-type: none"> i. CFE has delivered farmer engagement events across England focussing on pollinators. In summer 2016, 32 events were organised that covered all aspects of pollinator management, from grassland management to margin management and enhancing hedgerows for pollinators. The events were well attended, with over 300 farmers and advisers attending the events. 100% of those attending these CFE events said they would change management on their farm. ii. CFE has worker with industry partners to provide and promote subsidised CFE pollinator seed mixes for farmers. There are now three seed offers available: <ul style="list-style-type: none"> a. 350 hectares sold of the spring-sown 'Operation Pollinator' annual wildflower mix to provide food sources in the summer. b. 200 hectares sold of an autumn-sown 'Bees 'n' Seeds' mix 	<ul style="list-style-type: none"> i. CFE will continue Farmer engagement events to identify opportunities to deliver CFE pollinator events in 2017, where funding is available.
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	<p>to provide late summer pollinator food and winter seed for farmland birds.</p> <p>c. 300 hectares sold of the 'Field Margin' mix including seed to create floristically enhanced buffers or field margins.</p>	
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8. Review and update guidance on Integrated Pest Management (IPM)

<p>Health and Safety Executive (HSE), Defra, Linking Environment and Farming (LEAF), Voluntary Initiative (VI), Agriculture and Horticulture Development Board (AHDB), CFE</p>	<ul style="list-style-type: none"> i. AHDB remains active producing guidance to improve growers understanding of IPM and outline practical steps they can take to manage crops in this way. Examples of recent publications can be found at : http://www.ahdb.org.uk/publications/ ii. The VI has launched a project to update the Integrated Pest Management Plan (IPMP). iii. Review of the government's Pesticides Forum resulted in an increased number of IPM research bodies being included as members. Members were invited to identify sources of practical advice on integrated approaches to assist the VI project. iv. In partnership with Waitrose, and the Natural Environment Research Council, the Universities of Cambridge and East Anglia published evidence-based guidance on the effectiveness of farm management actions to enhance natural pest regulation. https://link.springer.com/article/10.1007%2Fs10531-016-1133-7 	<ul style="list-style-type: none"> i. It is anticipated that industry bodies will continue to be active in the development of new guidance, promoting the use of integrated approaches to control pests, weeds and diseases. ii. Defra is expected to publish updated guidance on the safe and sustainable use of pesticides. This guidance strengthens messages on the need for those responsible for pesticide use to ensure this is framed within the context of an integrated approach. iii. The VI's updated IPMP is expected to include links/additional advice for farmers/growers on practical steps they can take to manage crops in an integrated fashion.
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9. Voluntary Initiative (VI) to (a) revise guidance on insecticide best practice and (b) work with National Register of Sprayer Operators on training courses

Voluntary Initiative (VI), National Register of Sprayer Operators

VI action was listed as ‘Completed’ in the November 2015 update.

The VI has launched a web based tool – BeeConnected - to improve communication between farmers and beekeepers. BeeConnected offers a simple and efficient two-way process enabling farmers to identify their fields and, in just a few clicks, inform local beekeepers when they intend to spray an insecticide in particular fields. Beekeepers plot the location of their hives, and then receive a notification ahead of when a neighbouring farmer is applying insecticides to their crops. BeeConnected is supported by the Crop Protection Association and has been developed in discussion with the NFU and British Beekeepers Association.

The annual cycle of Pesticides Forum meetings and agenda have been adjusted to ensure all training providers (incl. City and Guilds who have NRoSO) are involved in the review of sustainable use data each year so that training courses are responsive to drive changes in user practice.

To monitor uptake of the BeeConnected service.

10. Share IPM practices with farmers and growers including on-farm demonstrations and farm walks

Defra, Health and Safety Executive (HSE), Campaign

i. The Voluntary Initiative (VI) scheme manages Integrated Pest Management plans, developed by the NFU and launched in April 2014, to promote and record IPM practices. The plans are for farmers, growers and spray operators to complete, and they encourage economically and environmentally sustainable management of pests, weeds and disease using a range of cultural, chemical, physical and biological controls. Since last year,

iv. The VI’s Updated IPMP will include links/additional advice for farmers/growers on practical steps they can take to manage crops in an integrated fashion as mentioned above.
v. CFE will continue to promote its crop protection messages to farmers and advisers.

<p>for the Farmed Environment (CFE), Linking Environment And Farming (LEAF), Agriculture and Horticulture Development Board (AHDB) , VI and NGOs</p>	<p>the number of farmers completing the plans has increased from 9,400 to just over 15,000, and accordingly the area of farmland managed by those completing plans has increased from around 2.6 million hectares to around 3.5 million hectares. A number of demonstration farms initiatives are in place in England and the UK which provide an opportunity to promote such messages</p> <p>http://www.sustainableagriculturewaitrose.org/home/about/ http://www.agrii.co.uk/agri-intelligence/ http://www.emr.ac.uk/knowledge-exchange/demonstration-farms/ http://www.agrievolve.co.uk/projects/demonstration-farms/ http://www.britishgrassland.com/page/demo-farms-research-practice http://dairy.ahdb.org.uk/resources-library/research-development/demonstration-farms/#.V80WrzH-VaQ http://www.fwi.co.uk/arable/two-new-potato-demo-farms-planned-for-2016.htm https://businesswales.gov.wales/farmingconnect/factsheets-publications-and-technical-articles/demonstration-farms-2014-report http://www.gwct.org.uk/blogs/news/2015/october/bird-recovery-at-gwct-and-rspb-demonstration-farms/</p> <p>ii. CFE has prompted its Crop Protection guide, and worked closely with the Voluntary Initiative to promote Integrate Pest Management Plans to farmers at events.</p> <p>iii. Promoting the BeeConnected app at events and online. BeeConnected is an initiative which provides a more efficient and effective way for farmers to inform beekeepers of their intention to apply an insecticide. This is a two-way communication process: farmers across the UK will be able to identify their fields and inform local beekeepers when they intend to spray an insecticide in particular fields. Similarly, beekeepers across the UK will be able to plot the location of their hives, whether permanently or temporarily placed.</p>	
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11. Keep under active review on-going research on IPM to identify practical advice to support pollinators and promote to farmers/growers

Defra, HSE, LEAF (Linking Environment and Farming), AHDB, VI (Voluntary Initiative), scientists and NGOs

HSE is keeping a watching brief, which links to Action 8: Review and Update Guidance on IPM.

HSE will alert Defra to emerging or completed research with relevant findings on pollinators. Defra will link to partners so new information can be included in their advice/plans.

Partners to advise Defra on new publications/data, etc. Defra to seek views of PASG members on research developments.

12. Secure commitment from large-scale land managers to follow Bees' Needs advice

Defra, NE, land managers, businesses

National pollinator strategy's Landscape for Wild Pollinators Initiative:

As part of the governments National pollinator strategy (NPS), Natural England has secured 275k of innovation funding from the NPS to put in place a three year partnership land management initiative (15/16 to 17/18). The aim of the initiative is to provide co-ordinated land management advice to deliver landscape scale habitat improvement for wild pollinators in geographically defined hotspots for farm wildlife across England's farmed landscapes. This includes promotion and delivery of the new CS WPFWP. Each project will be run by a different partner organisation and each will work with a major landowner or corporate sponsor of their choice. Each project will employ a land management adviser with Natural England helping to

National pollinator strategy's Landscape for Wild Pollinators Initiative:

Continue support for the Landscape for Wild Pollinator Initiative in 17/18.

Environment Agency

Over the next few months and into 2017/18 EA will be looking to:

- Help develop more pollinator projects on existing assets, continuing to provide guidance and share good practice.
- Design more pollinator benefits into new capital

seed fund each project. The initiative will work through 4-5 flagship partnership projects. Each of these projects will be run by different partner organisation including a major landowner and/or commercial/corporate sponsor working with an organisation with land advice capabilities.

The four live projects are:

- GWCT working with the Duchy of Lancaster are funding a land management adviser to work directly with Duchy tenants across the Duchy of Lancaster's land holdings in England (approximately 25,000ha) to deliver landscape scale habitat gains for wild pollinators and farmland wildlife across the Duchy of Lancaster's estate
- Buglife working with Ecotricity and Farm Care across Kent and Sussex. Progress to date; Buglife land management adviser now in place and their work has included development of three Higher Tier and four Mid-Tier Countryside Stewardship applications. Analysis of habitat and species data to identify key concentrations of rare pollinators and identify priority work areas. Using B-Lines to ensure landscape connectivity.
- Martin Down Farmer Cluster project – GWCT, SWIRE Charitable Trust and with direct funding from the farmers themselves – Are putting in place a land management adviser to work directly with a group of farmers on the South Wessex Downs (over approximately 7,000ha of Hampshire/Wilts farmland) to deliver landscape scale habitat gain for wild pollinators and farm wildlife,
- West Country Buzz - Bumble Bee Conservation Trust working with farmer groups, Ribena and CS FF projects across the Devon countryside to secure landscape scale habitat gain for wild pollinators and farm wildlife through the promotion of CS, the CS Wild pollinator and farm wildlife package and voluntary measures

Local Nature Partnership Pollinator Projects:

Defra funded £20k to 5 Local Nature Partnership projects from September 2015 to September 2016 with successful outcomes in a

projects and asset refurbishment, building on successes and lessons learnt for existing projects where this is being or has been done e.g. Exeter FAS and Medmerry managed re-alignment.

- Explore the feasibility of buying or contracting in machinery/machinery attachments that can collect arisings.
- Develop more partnership projects, for example with Lincolnshire County Council who are currently looking at ways that they can cost effectively remove arisings generated from the management of roadside verges for use in Anaerobic Digestion. Including EA embankment in future phases of the study could increase the potential of this project.

The Royal Parks

Plans for an invertebrate-themed cross parks People's Postcode funded project in 2017, which will incorporate surveys and community engagement events, pollinators being one of the chosen themes.

Participation in London's Bee Line project, which will involve creation and improvement of flower-rich meadows in The Regent's Park

Defra

Next year there will be an assessment of habitat to inform where seed needs to be introduced to encourage pollinators. Planting opportunities will be considered on a rolling basis. The initial focus has been on the office estate but an assessment of the wider estate and operational sites will begin.

range of areas including:

Habitat creation for pollinators in urban settings, such as allotments, school grounds and roadside verges; bee management and identification training; information sharing workshops; awareness raising through pollinator-friendly advice guides; volunteer engagement involving schools and local community groups; monitoring, surveys and ecosystem services mapping; as well as evidence on how pollinators use arable crops.

These projects have been taken forward in partnership with a wide range of bodies including, Wildlife Trusts, Buglife, Tesco, Merseyside bank; Sir Robert McAlpine, University of Lincoln, Highways England, schools, local communities among others. Lord Gardiner visited the school pollinator projects supported by the Hertfordshire Local Nature Partnership during 2016 Bees' Needs week.

Buglife through Urban Buzz; B-Lines project; Polli:Nation

Urban Buzz has been initiated in 4 cities. It has resulted in 60.87 hectares of habitat created on 132 sites with a commitment from land managers to manage for 5 years.

Buglife B-Lines has restored 185ha wildflower rich grassland and created 35 ha. Polli Nation project working with 250 schools on securing management for pollinators.

Network Rail

Network Rail has incorporated habitat for pollinators in a number of their projects. As part of the Green Transport Corridors Project in Cumbria and South Yorkshire they have identified (in conjunction with Natural England and local conservation bodies) locations suitable for pollinator habitat creation and enhancement. Pollinator habitat management work was undertaken this spring at Potterick Carr near Doncaster. Reversion of secondary woodland to create pollinator-friendly grassland habitats is a key feature of Network Rail's lineside

MOJ

MOJ is looking at creating a National Offender Management Service Bee Association.

vegetation management approach and is incorporated into their rolling maintenance programme

The Network Rail Greater West Infrastructure Projects Programme has undertaken wildlife planting at key sites along its route. The Programme also initiated wildlife planting at the Dorchester Community Orchard. The Thameslink Infrastructure Projects Programme also created new pollinator habitat to buffer and protect the Walthamstow Marshes SSSIs. Other Network Rail Infrastructure Projects are actively exploring opportunities to create new pollinator habitats as part of their commitments to secure net gain/net positive from their projects.

The Royal Parks

The Royal Parks produced a Pollinator strategy this year, published at <https://www.royalparks.org.uk/park-management/park-strategies/the-royal-parks-pollinator-strategy>. It carries out a number of activities to implement this strategy including:

- Awareness raising - the Artist in Residence project “A Right Royal Buzz”, based at St James’s Park, created works to raise awareness about pollinators in St James’s Park, Mall Galleries and the National Gallery. The artist worked with local schools and community groups to produce a variety of works. <http://www.mallgalleries.org.uk/whats-on/exhibitions/right-royal-buzz>. The total number of visitors to the 3 exhibitions across the 4 days was over 5000.
- Beehives – All parks have beehives where they can be sited safely. TRP has held events to demonstrate the role of bees in pollination. 2 new hives were installed in Greenwich Park community orchard.
- Habitat creation and enhancement - New wildflower meadow areas (1600 sq m) were created at St James’s Park.

<http://www.meadowmat.com/blog/wildflowers-royal-park/> . A new one-acre Coronation meadow has been sown in Green Park in partnership with Plantlife; the launch event was attended by Prince Charles. In Greenwich Park non-native conifer hedging has been replaced with native hedgerow species providing forage for pollinators as well as 10,000 new heather plants installed. Richmond Park has removed 50 acres of non-native Rhododendron and replanted with native pollinator-friendly understorey and woodland edge plants. Bushy Park is restoring 87 acres of Woodland Gardens, with much of the new planting being chosen as pollinator-friendly. Hyde Park continues to increase and improve areas of flower-rich meadow. Mowing regimes have been set up in all the parks to manage the meadow areas and increase floral diversity.

Government Estate:

Defra

DEFRA Group Estates and Facilities Management teams are making the estate friendlier for bees, butterflies, moths and other insect pollinators. This covers the DEFRA and Environment Agency Estate.

Key actions have included:

- Letting the grounds grow a little wilder to encourage pollinators – at several Environment Agency sites there has been some good successes with lots of wild flowers growing including bee orchids appearing.
- Reducing grass cutting to once per year - a number of trials were undertaken at sites across the country. Areas were selected and left uncut between March and the end of August after which a single cut was taken and arisings moved. In total around 3.7ha of grassland was managed at around 30 sites
- Ensuring insect nests and hibernations spots are not disturbed
- Working with Open Air Laboratories (OPAL) and in-house experts

at Environment Agency and DEFRA to get the best advice and monitor the effectiveness of the pollinator actions.

Environment Agency - Asset Maintenance

The Environment Agency has a number of projects aimed at developing and enhancing pollinator habitat on its assets across the country. Projects have started in Lincolnshire and Northamptonshire, Kent, South London, East Sussex and Essex. Successes have been seen at many of these for example: pollinator forage developing on Essex Sea walls as a result of deliberate track rutting to improve germination rates. EA now has good evidence to show that interventions in these areas are beneficial for species of rare bumblebees.

Highways England

Highways England's Biodiversity Plan sets out its commitment to the National pollinator strategy to creating 3,500 hectares of grassland rich in wildflower species by 2020, with funding set aside within the biodiversity topic of the Environment Designated Funds for delivery.

Highways England is actively engaged with the Linear Infrastructure Network (LINet) and is a strong advocate of road verge management that is beneficial to pollinators.

Highways England has been actively engaged in a joint initiative with Natural England, Network Rail and the Wildlife Trusts through the Green Transport Corridors Project in Cumbria and South Yorkshire. It is supporting works on the A590 in Cumbria to enhance and connect grassland habitat for pollinators such as the White Letter Hairstreak butterfly and on the M6 in Lancashire/Cumbria that will improve 28 hectares of grassland for pollinators.

MOJ

MOJ has a Pollinator Strategy for the MoJ Shared Estates. It has recruited 2 volunteer coordinators to work with partners on pollinator

projects; raise awareness about pollinator decline; and identify enhancements needed on the MOJ shared estate.

Key achievements include:

- 2016 was assigned “MOJ Year of the Pollinator”. In July 2016 a Biodiversity Day was held at MoJ HQ.
- MOJ engaged Bumblebee Conservation Trust (BBCT) to run wildlife gardening and Bee ID training for offenders.
- Awareness raising included a quarterly newsletter “Ecology e-news” including pollinator articles; a Pollinator Poster campaign and training over 300 staff on pollinator awareness (with MOJ’s residential Biodiversity Awareness Course); APHA ran biosecurity training courses which have directly trained 59 key site staff across 36 sites and indirectly trained over 350 offenders with regards to growing and importing native pollinators.
- Senior Project Sponsors were encouraged to incorporate native pollinators into new build projects.
- The Animal and Plant Health Agency ran Biosecurity training on our sensitive wildlife sites including
- MOJ has signed a Memorandum of Understanding with the Bumblebee Conservation Trust (taking an active role in BeeWalk, Kent Coastal project and Pollinating the Peaks);and Buglife (taking an active role in Bee Lines and Urban Buzz).
- MOJ has planted over 2 miles of native hedgerows to support pollinators and created over 20 ha of wildflower meadows in the past 12 months.
- MOJ now has over 50 sites which are actively managing their soft landscaping and native habitats for pollinators.

MOD

With a 235,500 hectare Defence estate, covering approximately 1% of the UK’s land mass, the MOD has for many years taken the

	<p>initiative on projects that benefit pollinators, primarily driven through the efforts of local Conservation Groups.</p> <p>The National pollinator strategy has given the MOD the opportunity to provide further contributions to implement the Strategy including:</p> <ul style="list-style-type: none"> • MOD collaboration with organisations such as Plantlife, National Parks, Wildlife Trusts and its own tenant farmers to set up suitable areas for pollinators to thrive, including the creation of wildflower meadows. • Actions of MOD Conservation Groups have helped enhance and increase the variety of forage for pollinators. • MOD has injected pollinator policy into the SSSI management programme, which has strengthened business cases and resulted in support from the MOD Conservation Stewardship Fund. 	
<p>13. Disseminate Bees' Needs to brownfield site managers</p>		
<p>CIRIA and Buglife</p>	<p>Buglife has developed the Brownfield hub has case studies, management advice and the Inventory linked through https://www.buglife.org.uk/brownfield-hub</p>	
<p>14. Publish policy and practice note on urban pollinators (part of Insect Pollinators Initiative)</p>		
<p>Insect Pollinators Initiative Programme Mgt</p>	<p>The University of Bristol (lead), Universities of Leeds, Reading, Edinburgh. Published by LWEC (Living with Environmental Change) produced a Policy and Practice Note: Baldock et al. 2015 <i>Managing urban areas for insect pollinators: As town and cities continue to grow how can land managers help insect pollinators in urban areas?</i></p>	

Group	<p>This was published in October 2015 and can be found at: www.nerc.ac.uk/research/partnerships/ride/lwec/ppn/ppn20/</p> <p>See also the policy and practice note from the Centre for Ecology and Hydrology http://www.relu.ac.uk/landbridge/resources/pdfs/LWEC%20PP27%20WEB.pdf</p>	
<p>15. Secure awareness of, and integrate Bees' Needs advice into Planning Guidance and local biodiversity initiatives (e.g., Green Infrastructure Partnership, Green Flag Awards, biodiversity off-setting)</p>		
Defra, DCLG, TCPA, KBT, local authorities and NE	<p>DCLG has included reference to pollinators in the updated <i>Natural Environment</i> section of the planning guidance under <i>Biodiversity and ecosystems</i>.*</p> <p>Land managers are provided with excellent opportunities to implement National pollinator strategy actions through initiatives such as the Green Flag awards and the 87 pocket parks created in 2016 with DCLG funding.</p>	
<p>16. Workshops on managing urban pollinators for a wide range of land owners and managers such as local authorities, developers, planners, Local Nature Partnerships</p>		
Defra, scientists, CIRIA, TCPA, ALGE and NGOs	<p>i. Buglife through Urban Buzz project has carried out Land manager workshops that to date has resulted in 44 people becoming trained on land management in urban areas.</p> <p>ii. See separate entry under item 4 for details of a Knowledge Sharing workshop carried out by Defra, NERC and the University of Bristol.</p>	

17. Promote plants for pollinators as part of (Building Research Establishment Environmental Assessment Method) BREEAM's sustainable building certification

BREEAM

- i. The BREEAM family of schemes (spanning buildings, master planning and infrastructure) contain criteria specifically focused on Ecology (including the promotion of plants for pollinators). Collectively the Ecology category rewards ecological protection, maintenance and enhancement appropriate to the project and surrounding habitats. BREEAM is in the process of developing an Infrastructure and new build homes scheme (the Home Quality Mark) which include Ecology categories/criteria.
- ii. From the start of June approximately 350 projects have been registered for assessment and certification against the BREEAM UK New Construction Non Domestic scheme for: Schools, Healthcare, Offices, Retail and Industrial. This represents an increase in sectors within the scope of this as well as an increase in schemes using BREEAM on these projects.

18. Annual Bees' Needs Champions award ceremony to celebrate excellent best practice by a wide range of land owners and managers

Defra, NGOs

Bees' Needs Champions 2016 was held on 8 November at Kew Gardens. The Awards were expanded to include a new category this year (Youth Groups). The PASG played a pivotal role in shaping the event through the pollinator competitions that they ran and supported. Lord Gardiner highlighted the exemplary work to support pollinators across a number of sectors. The Bees' Needs Champions was widely supported through social media as well as gaining the attention of the press. It emphasised the importance of supporting pollinators through the winter months.

Defra will continue to work with PASG to build on the success of the 2016 Champions.

	<p>PASG involvement included:</p> <ul style="list-style-type: none"> • Local Authority Category run by Keep Britain Tidy; • Schools Category run by Learning Through Landscapes; • Community Group Category run jointly by Kew's Grow Wild initiative and Keep Britain Tidy • Youth Groups Category run by Kew's Grow Wild Initiative • Farming Category run jointly by Natural England and the Campaign for Farmed Environment • Construction Category run by CIRIA. • Awareness raising: A number of PASG organisations raised awareness through social media campaigns and sharing information about the awards. These included Friends of the Earth, The World Bee Project, RHS amongst others. 	
<p>19. Develop pesticide guidance for amenity use</p>		
<p>HSE, Defra</p>	<p>Defra and HSE continue to work in collaboration with industry, including the Amenity Forum to further enhance the suite of guidance on use of integrated approaches in different parts of the sector.</p> <p>http://www.amenityforum.co.uk/about.html</p> <p>http://www.amenityforum.co.uk/getmoving.html</p>	<p>Defra and HSE will continue to work with the Amenity Forum to ensure appropriate guidance is available for all parts of the sector and explore ways to maximise uptake by users.</p>
<p>20. Develop quality standard to ensure availability of high quality native origin seeds for wildflower planting schemes</p>		
<p>Kew's Native Seed Hub and Millennium</p>	<p>Kew is continuing to trial a quality-tested, UK native origin consumer mark on seed distributed by Kew's Grow Wild project and Kew-branded retail products marketed by Thompson and Morgan.</p> <p>Kew has formed a joint working group with the International Seed Testing Association (ISTA) and Association of Official Seed Analysts</p>	<p>Kew will continue to contribute technical expertise and data to the Wild Species Working Group, which will culminate in new guidelines for quality-testing native seed.</p>

Seed Bank	(AOSA) and Society of Commercial Seed Technologists (SCST) to develop international guidelines for quality-testing native seed. Such guidelines would be a valuable tool for seed producers and an important step towards developing agreed quality standards.	
21. (Continue to) improve beekeepers' management of pest and disease risks of honey bees through the Healthy Bees Plan		
Defra, NBU, beekeeping associations	<p>Policy and practice notes from the Insect Pollinators Initiative have been published at https://wiki.ceh.ac.uk/display/ukipi/IPI+Policy+and+Practice+Notes?at_token=58a7f57a0de82ef2ef1a6637c53b096c5078b8ea</p> <p>National Bee Unit (NBU) inspectors continue to provide free training to beekeepers on the identification and treatment of bee pests and diseases. In 2015 the NBU carried out 189 training courses benefitting over 6 thousand beekeepers.</p> <p>The NBU inspectorate this year achieved ISO 17020 accreditation (the global inspection quality standard) for its diagnosis of bee health notifiable diseases American and European Foulbrood.</p>	Continue to assist beekeepers with identifying and controlling bee pests and diseases, including providing hive-side training and training courses.
22. Implement revised policies to control pest and disease risks of honey bees		
NBU, Defra, beekeeping associations	<p>Findings from the last year's 'stress testing' of the National Bee Unit's surveillance strategies are being incorporated into the inspections programme. New risk points have been identified increasing the probability of early interception of an exotic bee pest.</p> <p>Defra's Bee Health Policy team have this year developed new contingency plans for the Small Hive Beetle and the Asian Hornet. These plans will be tested twice a year by the National Bee Unit to</p>	In September 2016, following a positive identification of the Asian Hornet in Gloucestershire, the National Bee Unit enacted its new contingency plan. Surveillance techniques were used to identify the location of a nest which was removed for analysis. All lessons learned will be taken forward to improve our capability to deal with future outbreaks.

	ensure that all field inspectors and support staff are trained in how to respond should an outbreak occur. This year's contingency exercises were unannounced allowing us to test inspectors' real-time preparedness for an outbreak of an exotic bee pest.	
23. Monitor and keep under active review evidence of disease risks from commercially used bumble bees and take actions as required		
Defra	This is monitored on an on-going basis by the Bee Health Policy team and the National Bee Unit.	Defra will continue to monitor the impact of the trade in bumblebees.

Table 2: progress implementing National pollinator strategy Evidence Actions – November 2015 to November 2016

Lead/other	Progress Nov 2015 – Nov 2016	Next Steps
1. Develop and field-test a new monitoring framework that can be implemented by professionals and volunteers.		
	<ol style="list-style-type: none"> 1. Between 2014 and 2016, Defra, Welsh and Scottish governments funded and published independent research that developed and tested a range of potential methods, analytical techniques and sampling strategies to provide a framework for implementing long-term monitoring of insect populations⁹. 2. The final research report ‘Design and Testing of a National Pollinator and Pollination Monitoring Framework’ was published in May 2016. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19259 	<p>No further steps required on this action. Work will now focus on implementing improvements to monitoring, using the published framework.</p>
2. Implement new monitoring scheme(s).		
	<ol style="list-style-type: none"> 1. In 2016, Defra established a monitoring coordination group with representation from the four UK countries, the Republic of Ireland and various voluntary and research organisations. The aim of the group was to improve coordination of pollinator monitoring, and to develop a funding partnership for new activity to support each of the country strategies or action plans for pollinators. 	<p>Defra will aim to formalise a funding partnership to implement new monitoring across Great Britain, and to support work in Northern Ireland and the Republic of Ireland, so that new monitoring can take place from the start of 2017. Success will depend upon financial support from additional funders.</p>

⁹ Design and Testing of a National Pollinator and Pollination Monitoring Framework.

	<ol style="list-style-type: none">2. The inaugural meeting of this group was combined with a British-Irish Council workshop on 8 March 2016. This brought researchers and practitioners together from across the UK, the Republic of Ireland and the Crown Dependencies to discuss current research and monitoring initiatives and identify actions that would improve collaboration and strengthen monitoring.3. A number of organisations have pledged financial or in-kind support and agreed in to work together to fund and strengthen monitoring.	<p>The partnership has been agreed and we will need to implement the agreed monitoring and reporting over the next two years</p>
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3. (Continue to) Improve standards of data collection, management and analysis in volunteer recording schemes.

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| <ol style="list-style-type: none">1. Originally envisaged as a stand-alone project, this action is being taken forward through a range of existing initiatives:<ol style="list-style-type: none">a. Implementation of the National Biodiversity Network Strategy 2015-2020, led by the NBN-Trust. The Strategy has five main aims, the first of which is to record, collect, diversify, enhance and mobilise biological data, and to deliver this aim by increasing, streamlining and standardising the recording and collection of high quality, structured and representative data https://nbn.org.uk/about-us/what-we-do/strategy/b. Investment by the Joint Nature Conservation Committee (JNCC) and the Centre for Ecology and Hydrology (CEH) in biological recording and analysis which includes work on improving analytical methods that can be applied to species data sets http://www.brc.ac.uk/2. The JNCC-CEH investment has resulted in the publication of an initial indicator of pollinator population change using novel probabilistic modelling and analysis http://jncc.defra.gov.uk/page-6851 . | <ol style="list-style-type: none">1. The Defra Group, led by Natural England, JNCC and the Environment Agency will continue to work with the NBN-Trust to implement the new strategy for the National Biodiversity Network.2. JNCC will continue to invest in biological recording and analysis in 16/17, reviewing their investment thereafter.3. Actions to improve data quality and analytical standards will also be integrated into action 2 above (pollinator monitoring implementation) |
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4. Expand pool of taxonomic expertise and capability for identifying insect pollinators.

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| <ol style="list-style-type: none">1. In 2015, Defra, with the Natural Environment Research Council funded a postdoctoral fellowship at the Natural History Museum in London on genomics and taxonomy of UK insect pollinators which will complete in 2016. http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=19460. In 2015, collaboration with the Natural History Museum was extended to add an additional postgraduate studentship that will run until 2018. | <ol style="list-style-type: none">1. The project reports from the studentships will be published on-line by Defra, and in the scientific literature by the natural History Museum.2. Defra, JNCC and the Natural History Museum will continue to liaise to disseminate and apply new techniques. |
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2. A range of organisations continue to provide support and training for species identification. For example:
 - a. The Field Studies Council offer a range of insect natural history courses: <http://www.field-studies-council.org/individuals-and-families/natural-history/animals.aspx>
 - b. The Open Air Laboratories (OPAL) initiative runs a series of events, and provides on-line resources to support natural history id <https://www.opalexplorenature.org/>.
 - c. The Bumblebee Conservation Trust run a series of events tailored to different ID abilities on an annual basis <http://bumblebeeconservation.org/get-involved/events-calendar/>

5. Improve understanding of motivations of volunteer recorders to aid recruitment of additional volunteers into new monitoring framework for pollinators.

1. Originally envisaged as a stand-alone project, this action was taken forward through two existing initiatives:
 - a. Two UK Environmental Observations Forum project, funded by Defra and the Natural Environment Research Council on the benefits of citizen science and the motivations of volunteers <http://www.ukeof.org.uk/our-work/citizen-science>
 - b. A volunteer testing component to the Defra-funded research project 'Design and Testing of a National Pollinator and Pollination Monitoring Framework' published in 2016. <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=19259>

No further steps required on this action. Work will now focus on using the published research to recruit volunteers in monitoring.

6. Support long-term storage of insect specimens from research projects in anticipation of improved identification technology.

	<ol style="list-style-type: none"> 1. In 2015, Defra co-funded work to establish an insect biodiversity archive to preserve 46,000 specimens collected during research funded under the UK Insect Pollinators initiative (IPI), and make these available for future research. These specimens are now being transferred to the Natural History Museum in London. 2. In 2016, Defra, Centre for Ecology and Hydrology and the Natural History Museum agreed to transfer all specimens from research project ‘Design and Testing of a National Pollinator and Pollination Monitoring Framework’ published in 2016, were transferred to the same repository. 	<p>No further steps required on this action. Work will now focus on using the published research to recruit volunteers in monitoring.</p>
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7. Feasibility study on conducting primary research on relationship between pollinators and pollination services in the crop production.

	<ol style="list-style-type: none"> 1. Originally envisaged as a stand-alone ‘feasibility’ project, this action was not taken forward because other research projects were already underway that had either gone beyond ‘feasibility’ and started to look at the pollinator and pollination service relationship, or that were reviewing or updating research needs: <ol style="list-style-type: none"> a. The Insect Pollinator Initiative (BBSRC, Defra, NERC, the Scottish government and the Wellcome Trust) funded a project “Sustainable Pollination Services for UK Crops” which specifically assessed the contributions of different pollinators to crop production in the UK: https://wiki.ceh.ac.uk/display/ukipi/IPI+Projects b. The Natural Environment Research Council funded a landscape scale assessment of Biodiversity and Ecosystem Services ‘Wessex BESS’, which has a work package exploring the functional relationship between insect and landscape diversity and both pollination and pest control services. http://wessexbess.wixsite.com/wessexbess/objectives c. The EU funded the research project <i>Status and Trends of</i> 	<p>Defra and partners will keep the outputs of current NERC-funded research under review. Defra will also work with partners to promote the use of monitoring data to facilitate research on the relationship between pollinators and pollination services.</p> <p>The Pollinator Advisory Steering Group will consider the re-establishment of an evidence working group to maintain oversight of external research and advise on its implications for Strategy delivery (as part of ongoing governance review)</p>
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	<p><i>European Pollinators</i> (STEP) which is measuring the ecological and economic impacts on declining pollinator services http://www.step-project.net/ and <i>Sustainable Pollination in Europe</i> (SUPER-B) – which is promoting joint research on bees and other pollinators http://www.cost.eu/COST_Actions/fa/FA1307</p> <p>d. The Inter-Governmental Platform on Biodiversity and Ecosystem Services commissioned a thematic assessment of ‘Pollinators, Pollination and Food Production’ published by http://www.ipbes.net/work-programme/pollination.</p> <p>e. The research community, led by Imperial College, London also organised a two-day workshop in 2015 to systematically review research gaps and identify priorities. The workshop outputs were written up as a scientific paper: Richard Gill’s 2016 “Protecting an Ecosystem Service: Approaches to Understanding and Mitigating Threats to Wild Insect Pollinators, DOI: 10.1016/bs.aecr.2015.10.007</p>	
<p>8. Scoping study to consider benefits of research on ecology of pollinator/wild plant interactions.</p>		
	<p>1. Originally envisaged as a stand-alone project, this action was taken not taken forward as it was not considered that a scoping study was required. There are already a number of ongoing research initiatives on the ecology of pollinator/wild plant interactions. For example:</p> <p>a. Research on plant –pollinator interactions at Royal Botanic Gardens Kew http://www.kew.org/discover/blogs/kew-science/hidden-poisons-rhododendron-nectar</p> <p>b. EU research programmes (STEP and SUPER-B – details above)</p>	<p>Defra and partners will keep the outputs of current NERC-funded research under review. Defra will also work with partners to promote the use of monitoring data to facilitate research on the relationship between pollinators and pollination services.</p> <p>The Pollinator Advisory Steering Group will consider the re-establishment of an evidence working group to maintain oversight of external research and advise on its implications for Strategy delivery (as part of ongoing governance review)</p>

	<p>c. Research at RBG, Kew, with Uni Massachusetts reports that thymol (which occurs naturally in nectar of <i>Thymus vulgaris</i>) is active against a gut parasite of Bumble bees, <i>Crithidia bombi</i> (Palmer-Young et al., 2016 <i>Sci. Rep.</i> 6, 37087).</p> <p>d. PhD and MSc students at Universities of Cambridge, Southampton and Imperial (all co-supervised by Lynn Dicks, University of East Anglia) are collaboratively compiling a global dataset on the dependence of wild plants on pollination. The first publication, evaluating the impact of vertebrate pollinators (birds and mammals) on wild plant fruit and seed production, was recently submitted</p>	
<p>9. Study to develop a framework for assessing the indirect benefits and socio-cultural value of pollinators to the public.</p>		
	<p>Research has been commissioned and funded by Defra to take forward this action. The project is nearly completed and the final report is titled “Pollinating insects: what do they mean to people and why does it matter?”</p> <p>The project has two complementary aims:</p> <ol style="list-style-type: none"> 1. To enhance understanding of the social and cultural values of pollinators 2. To improve the way in which these values are taken into account in policy development and other decision-making at a variety of spatial scales <p>The project provides insight to help engage people, improve communications and influence behaviour to protect and enhance environments for pollinators.</p>	<p>The final report will be published in the this year and will help to inform communications and awareness raising campaigns about pollinators. It is also intended to inform wider policy and decision-making to support the aims of the National pollinator strategy.</p>

	<p>The research has been carried out by Simon Christmas, Bob Bloomfield, Helen Bradburn, Rosemary Duff, Gill Ereaut, Cait Miskelly, Kay Scolah and Rebecca Whiting.</p>	
<p>10. Determine the effects of neonicotinoids on wild and managed pollinators in field conditions</p>		
	<p>Commission Regulation 485/2013, which imposed restrictions on the use of three neonicotinoids from 1 December 2013, required pesticide companies to submit confirmatory information as regards to the risk to pollinators from neonicotinoids in field conditions. Pesticide companies have submitted this information to the European Food Safety Authority (EFSA), which is reviewing the scientific evidence – including these studies as well as published academic literature.</p>	<p>The UK government will continue to contribute to this review which should be completed in 2017.</p>
<p>11. (continue to) Assess the impacts of restrictions on neonicotinoids on farmers’ decisions on cropping and pesticide use.</p>		
	<p>Organisations including the Agricultural and Horticultural Development Board and ADAS have studied the factors influencing oilseed rape crop decisions and outcomes in recent years. It is clear that there are a number of issues, including commodity prices and weather as well as pest pressures. There is evidence that some growers have suffered significant crop losses from Cabbage Stem Flea Beetle, against which neonicotinoid seed treatments are intended to provide protection.</p>	<p>Defra will continue to monitor any data as it becomes available.</p>