

SCIENCE behind BLUE campaign

Pollinators

Postnote

Title: Reversing Insect Pollinator Decline

Summary: Document outlining the recent trend in pollinator decline and what steps can be taken to prevent further loss of pollinators such as bees and butterflies. Pollinators through facilitation of crop and wildflower species survival generate £510 million in ecosystem services a year. Intensive farming leading to loss of natural habitats, climate and weather changes resulting in limited forage availability and use of pesticides are all linked to declines. Increased habitat creation in urban and semi-urban environments, as well as governmental controls/restrictions on pesticides can help reverse these trends.

Link: <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/POST-PN-442/#fullreport>

Thesis

Title: The impacts of a Rewilding project on pollinator abundance and diversity at a local scale

Summary: A masters' thesis conducted at Knepp wildlands into the impact of time since agricultural cessation (passive rewilding) has on pollinator species abundance and diversity. Whilst there was a non-significant impact of time and pollinator levels, results indicate that habitat heterogeneity or varied vegetation height (common occurrences in rewilding habitat mosaics) has a positive impact on pollinators i.e. the more diverse the vegetation at a rewilding site, the more habitats there are for pollinator species.

Link:

<https://static1.squarespace.com/static/595ca91bebbd1a1d0aaab285/t/5c9cfb3be79c70a00f78acac/1553791806071/Masters+Dissertation+Claire+Wallace.pdf>

Paper

Title: Importance of pollinators in changing landscapes for world crops

Summary: This paper covers the importance of wild, semi-wild, and domestic pollinators in regard to crops and how agricultural intensification can reduce diversity/abundance, ultimately having a negative impact on crop production. Among 63 crops, 13 were wholly dependent on pollinators and will be severely impacted by their loss. Empirical evidence and direct testing indicated that honeybees and wild pollinator species are valuable pollinators for 35 crops. Facilitation of crop production and health of neighbouring ecosystems can be helped by increasing nest opportunities for different species (surface vegetation, growth of neighbouring forest, and increasing diverse floral resources in local areas adjacent to farmland).

This can be helped through reduced management and rewilding sites.

Link: <https://royalsocietypublishing.org/doi/full/10.1098/rspb.2006.3721>

Paper

Title: Rewilding: pitfalls and opportunities for moths and butterflies

Summary: "Suggests passive abandonment and active (temporary) management interventions to restore semi-natural biotopes within a rewilding context". The paper indicates that total agricultural abandonment is not necessarily beneficial to lepidoptera (moths, butterflies etc) however creation of large-scale habitat heterogeneity (mixture of forest, meadow, and scrubland) will provide for a larger range of species, especially if fragmentation is reduced. This heterogeneity needs to be provided at multiple spatial scales i.e. a patchwork of environments.

With this in mind, rewilding of verges, gardens and hedgerows are likely to provide the meadow habitats, which, combined with forest and scrubland, will cater to a range of species both lepidoptera and otherwise.

Link: https://link.springer.com/chapter/10.1007/978-3-319-12039-3_6

Urban biodiversity

Paper

Title: Benefits of restoring ecosystem services in urban areas

Summary: Development of urban areas presents opportunities to increase ecosystem health and services. Studies from 25 urban areas showed that investing in urban ecological infrastructure not only provides these services but is also economically advantageous. In particular, investment into Blue and Green infrastructure contributes to the UN's agenda on a Green Economy for the 21st century. Examples of ecosystem services provided by green spaces/ecosystem restoration include: Water regulation, decreases in ambient temperature (through increased canopy cover provided by trees), pollution reduction, habitat mosaic reconstruction for urban animals, and cultural services.

Link: <https://www.sciencedirect.com/science/article/pii/S1877343515000433>

Website

Title: Attracting wildlife into your garden

Summary: Tips on attracting wildlife into your garden by the Suffolk Wildlife Trust, includes leaving areas to rewilding, allowing hedges and trees to grow and utilising natural pest control.

Link: https://www.suffolkwildlifetrust.org/wildlifegardening?fbclid=IwAR2F4JLLjSVAizdIKrcqJrup-h_Qj32Jcfe9O3zL2818SWvB5JnUL4Rru-w

Blog

Title: Biodiversity: Making wildlife welcome in urban areas

Summary: According to the cited study there was little difference between frequency of animals using urban environments and more natural settings highlighting not only the possibility of human-animal coexistence but the potential need to cater for them in urban planning.

Link:

<https://elifesciences.org/articles/41348?fbclid=IwAR3wVSrMdZ4SMTikDmX9Q5V7aAxn24HMkIElqDKC30oze9r6M1RIQddEvP0>

Report

Title: Making space for biodiversity in urban areas

Summary: Useful as a general planning tool for increasing biodiversity/green spaces in urban areas. Of particular interest for a project like the BLUEcampaign or others will be section 2.4 (private gardens and balconies) and 2.6. (Designing green space for biodiversity – connectivity and fragmentation).

Link: http://www.uep.ie/pdfs/guidelines_CH2.pdf

Hedgerows

Website

Title: The value of hedgerows for wildlife

Summary: A concise page by the RSPB on the general benefits of hedgerows for wildlife such as shelter, corridor creation, and food.

Link: <https://www.rspb.org.uk/our-work/conservation/conservation-and-sustainability/advice/conservation-land-management-advice/farm-hedges/the-value-of-hedgerows-for-wildlife>

Factsheet

Title: Managing hedges and edges...for bumblebees

Summary: A factsheet on the best ways to manage hedgerows, ditches and fields for bee/pollinator facilitation. Primarily this involves reducing or ceasing margin management to allow establishment of nesting sites/wildflower growth, as well as reducing or ceasing use of chemical pesticides. Whilst this document is aimed at farmers, the principles apply to gardens and all other land types that can provide for urban animals or hedgerow residing species.

Link: https://www.bumblebeeconservation.org/wp-content/uploads/2017/08/BBCT_Land_Factsheet_6_Managing_hedges_edges.pdf

General background

Paper

Title: Global synthesis of conservation studies reveals the importance of small habitat patches for biodiversity

Summary: Paper that suggests that we should recognise the importance of small patches of habitats in conservation and protecting the world's biodiversity. This should link in with large scale conservation efforts, but it highlights the role that edge, hedgerow and urban greenspaces/gardens can have in increasing ecosystem connectivity and health. The priority should be reduction in fragmentation, especially in small, isolated, remnant patches of habitats i.e. increasing connectivity will help in strengthening the ecosystem by making it more robust and less likely to collapse.

“Small isolated patches, such as those in more-urbanised environments, tend to be disproportionately susceptible to processes such as weed and feral pest invasion or illegal clearing” – this highlights the importance of urban landscapes as potential areas of conservation.

Link:

<https://www.pnas.org/content/116/3/909?fbclid=IwAR1DH7n8Xc808hcuyImg7oihIHKOlBzMI0tQYh-PG1cYLYkIm6NpAJdNrU>

Paper

Title: Science for a wilder Anthropocene: Synthesis and future directions for trophic rewilding research

Summary: A useful paper in understanding the background of rewilding, primarily trophic (the reintroduction of large herbivores to reinstate lost processes in damaged ecosystems). In general, allowing nature to reclaim itself, with the right initial conditions, and reducing human intervention will assist ecosystem health. This can be applied at small scales through passive rewilding in gardens and hedgerows by stopping cutting of plants and allowing wildflowers/foilage to grow.

Link: <https://www.pnas.org/content/113/4/898>

Paper

Title: Openness in management

Summary: Challenging ideas of an either totally forest dominated natural habitat or a totally open habitat. Pollen records and vertebrate remains again indicate a historical matrix of habitats, both forest/woodland, semi-open and open habitats. Complete intensive management and allowance of closed canopy development are unlikely to mimic previous UK habitats.

As such allowing of hedgerow, verge and garden development, alongside woodland and agricultural landscape will provide a variety of vegetation and habitats that pollinators and small mammals can use.

Link: <https://www.nature.com/articles/418834a>

Report

Title: rewilding knowledge hub

Summary: an extensive database for rewilding information, the link brings you to the bibliography. Of interest will be section 3.1.2.1 (Passive rewilding), 3.2.2 (Bottom-up processes), 3.5.3 (physical/Habitat restoration), and 3.6 (Impacts).

Link: https://www.rewildingbritain.org.uk/assets/uploads/files/knowledge-hub/Rewilding_Knowledge_Hub_Summary_v1.0LowRes.pdf