Small spaces can make a big difference to wildlife, new study suggests

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Wildflower strips deployed in Washington, comprising a mix of Hall's aster, Canada goldenrod, Lupine, Sunflower and Yarrow. Credit: Elias Bloom

Small patches of land given over to wildlife-friendly planting can make a big difference to pollinator conservation, a new study suggests.

Bee and other pollinator populations in Europe and North America are in decline due to a range of factors including habitat loss and insufficient flowers for food.

Scientists from Lancaster University in the U.K., as well as Michigan and Washington State Universities in the U.S., conducted a study looking at the effectiveness of smaller wildflower planting and pollinator habitat creation.

Previous studies, as well as restoration projects, have largely focused on bigger-scale rural projects and agricultural land. Smaller spaces, such as urban gardens, land around business premises and wasteland are often overlooked by researchers looking at pollinator richness and abundance.

Although this study did not directly focus on urban sites such as city gardens, the research team wanted to find out if a landscape made up of small patches of conservation habitat can have a significant impact on pollinator diversity.

The researchers conducted a meta-analysis of 31 previous studies performed over the last 30 years into pollinator-friendly planting across different scales. They found an interesting trend: typically overlooked smaller plots of wildflowers, less than 500m^2, produced a 1.4-fold increase in pollinator abundance over control plots. Based on these findings, they designed a field study using small patches for community farms in Washington State to test this idea. Planting these 11 small patches, only 30m^2 big, with floral strips and nests for pollinators they saw an overall increase in the number of recorded bees—rising from 1,360 in 2014 to 3,550 in 2018.

"This work shows that you don't need to own a huge amount of farmland to benefit bees, and although we didn't directly look at urban plots the results suggest that even people with small gardens who want to plant a wildflower strip can make a difference," said Dr. Philip Donkersley of Lancaster University and lead author of the study. "We're seeing these huge benefits to pollinators from small-scale interventions that we used to ignore, this is hugely encouraging for both conservationists and the general public."

The results from the field study plots show that the beneficial effects of small patches are only found where there are multiple pollinator-friendly plots relatively closer together. The benefits were significantly reduced when there are fewer small plots spread out within large landscapes, such as big areas of farmland larger than 15 hectares.

This research is supported by similar studies of little patches of pollinator-friendly plots within city environments, which have also shown to add up across a cityscape to be a huge natural resource for wild bees.

The results, published by the journal *Agriculture Ecosystems & Environment*, are outlined in the paper "A little does a lot: can small-scale planting for pollinators make a difference?"

More information: Philip Donkersley et al, A little does a lot: Can small-scale planting for pollinators make a difference?, *Agriculture, Ecosystems & Environment* (2022). DOI: 10.1016/j.agee.2022.108254

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