

Helping Bees in Urban Gardens and Parks

by Francis L W Ratnieks

In Britain there are about 30,000 beekeepers but millions of gardeners, not to mention other urban landowners including the parks departments of local councils. Helping bees and insects in their own gardens is probably the most widespread opportunity the public can have to help bees. Garden flowers vary approximately one hundred-fold in their attractiveness to honey bees and other flower-visiting insects. Varieties that are attractive to bees and other insects are just as pretty to look at and as easy to grow as the 'unattractive' varieties, so an attractive garden for both bees and humans can be achieved at zero additional cost. All that the public needs to do is to choose those plant varieties that bees like. It is quite easy to determine the good and not so good varieties simply by counting insects on flowers and comparing visitor numbers. Wild flowers can also be encouraged in urban areas by, for example, reducing grass cutting, which can encourage what is already there to bloom.



Southover Grange Garden is a beautiful park in the Sussex town of Lewes. In August 2012 the garden had a wonderful display of attractive flowers. However, most of the 79 flower varieties being grown were visited little, 47%, or not at all, 30%, by bees and other insects. Only 4% were highly attractive. This is probably typical of many gardens.

References

- Garbuzov M, Fensome K, Ratnieks FLW. Public approval plus more wildlife: twin benefits of reduced mowing of amenity grass in a suburban public park in Saltdean, UK. *Insect Conserv Diver* 2014; doi: 10.1111/icad.12085
- Garbuzov M, Ratnieks FLW. Listmania: The strengths and weaknesses of lists of garden plants to help pollinators. *BioSci* 2014; doi: 10.1093/biosci/biu150
- Garbuzov M, Samuelson EEV, Ratnieks FLW. Survey of insect visitation of ornamental flowers in Southover Grange garden, Lewes, UK. *Insect Sci* 2014; DOI: 10.1111/1744-7917.12162
- Garbuzov M, Ratnieks FLW. Ivy: an underappreciated key resource to flower-visiting insects in autumn. *Insect Conserv Diver* 2014; 7: 91–102.
- Garbuzov M, Ratnieks FLW. Quantifying variation among garden plants in attractiveness to bees and other flower-visiting insects. *Funct Ecol* 2014; 28: 364–74.

Bees are almost entirely dependent on flowers for food. One way of helping bees is to increase flower numbers. Garden flowers are visited by many bee species including honey bees. Honey bees routinely forage several kilometres from the hive, and maximally at ten to twelve kilometres. As a result, a garden with attractive flowers has the potential to provide food for many hives. Garden flowers should be especially valuable in the summer, which is the season when honey bees fly the furthest to forage, which indicates that it is hard to find high quality flower patches.

Helping bees in gardens seems simple: just plant more flowers – but which ones? Ornamental garden flowers vary greatly in their attractiveness to bees and other insects. Lists of bee-friendly plants are available, but in a survey we made of these lists we found that they have various shortcomings. Unsurprisingly, given that there are tens of thousands of garden flower varieties, lists are incomplete. In addition, they oversimplify. Asters are often included in lists, but there are many varieties. We surveyed over two hundred aster varieties at the national collection at Picton Garden in Worcestershire. We found that most varieties actually attracted few bees and other insects. In short, different varieties of asters range from excellent to useless when it comes to attracting bees.

Perhaps the biggest shortcoming is simply that it is not clear how the lists were made. In particular, what data were used to compile them. To put the process on a firmer scientific footing we planted special beds of 32 summer flowering garden flower varieties on the university campus, and counted the insects throughout the bloom period for two years. Overall, 29% of the insects attracted were honey bees. The most attractive varieties had one hundred times as many visiting

insects as the least attractive. This is an important result as it shows that it is possible to make a garden more bee-friendly at zero additional cost simply by choosing different plant varieties, as every variety we used was attractive to the human eye, and easy to obtain and grow. We found a similar situation in a local park, as only three of the 79 flower varieties being grown were highly attractive to insects.

Helping bees in parks and gardens is not just about planting attractive varieties. It is also possible to help what is already there. One unsung hero is ivy. Ivy has the least colourful flowers possible, green and lacking petals, but they produce pollen and nectar. By analysing pollen loads, we found that 90% of the autumn pollen collected by honey bees was ivy. Towns also contain grassy areas. In a Brighton park, the Saltdean Oval, we monitored wild flowers and insects in half of the park where the council had reduced grass cutting. A huge range of wild flowers, which had been living there all along, could now grow and bloom. The long grass area had about fifty times as many insects as the short grass area. One of the commonest wild flowers that benefitted from reduced cutting was black knapweed, which is extremely attractive to honey bees.

Videos from the LASI YouTube Channel 'LASI Bee Research and Outreach'

- Quantifying variation among garden plants in attractiveness to bees and other insects. <https://www.youtube.com/watch?v=4u2LeTPGo9w>
- LASI Research on the attractiveness of ornamental garden flowers to bees and other insects. https://www.youtube.com/watch?v=stMgzQI_kvA
- How to determine good plants for your garden by counting insects. <https://www.youtube.com/watch?v=18BgUj10ayU>