

The Plight of the Humble Bee

Written by John Eager

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Beekeepers, farmers and scientists have been alarmed by the decline of bee populations worldwide over the last four years. This article is designed to shed some light on what is happening to bees, their environment and to highlight some ways in which we might be able to help bee populations recover and thrive.

Firstly, it should be noted why the decline in bee populations is so alarming. Bees are important pollinators in natural habitats the world over. Commercially honeybees are used in agriculture to pollinate 80% of all flowering crops, which it is estimated provide one third of the human diet.

So, what is happening to bees?

When farmers go to their bee hives they do not find a mound of dead bees; they find an almost complete absence of bees, just a queen and few weak males. The worker bees have mysteriously disappeared; failing to return to the hive. It is as if they have become lost.

Scientists have dubbed the phenomenon Colony Collapse Disorder (CCD).

In the USA, where the decline in bee populations was first noticed in 2006, thousands of bee colonies are trucked around the states on lorries to monocultures: almonds in California; apples in New York and blueberries in Maine.



These vast monocultures that feed human populations probably have a hand in the decimation of bees. Firstly, the monocultures are not organic, rather they are 'protected' by insecticides,

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herbicides and fungicides that act to destroy much of the wildlife in the environment. There are about 200,000 known species of animal pollinators across the world ranging from beetles, flies, ants, butterflies and moths in the insect world to birds and even bats in the mammal world. Agricultural monocultures are unnatural habitats; insects that could have acted as natural pollinators are removed by pesticide and farmers have no other choice than to use imported bee colonies as pollinators.

In this monocultural environment bees have only one food source - the nectar of the flower that they are pollinating. Imagine having a diet of only one food for a month - baked beans morning, noon and night - pretty soon we wouldn't be feeling too great.

[In one piece of research](#) that points to pesticides as a problem for bees 121 different types of pesticides were found in 800 samples of wax and bee pollen taken from bee hives. Pesticides are suspected of harming the bees' immune system.

Another factor that reduces bees' immunity from disease is the [Varroa](#) mite, a parasite that feeds off the body fluids of the bee. While the varroa mite has decimated wild bee populations worldwide, commercial farmers have used two techniques to halt the spread in their own hives. The first technique was to use certain pesticides which killed the mites, but also left the bees compromised and weakened. The second more successful technique has been to breed bees resistant to the mite in selective breeding programmes. While the latter technique has taken longer to produce hardier bees, it has proved the more successful option.

More recently research has pointed to other man made factors that may be confusing bees flight patterns and homing instincts. Research in Germany showed that overhead powerlines confused bees and made them unable to navigate. Other research has pointed to radiation from mobile phone masts as having a similar disorienting effect on bees. Bees seem keen to avoid such radiation.

While many scientists believe a variety of factors may be harming bees - poor diet, varroa mites, insecticides and some human technology, another piece of research provides another piece to this complex jigsaw. [Scientists at the University of Illinois](#) have compared the bee genomes of CCD affected bees and healthy bees. In a microarray analysis of the gut of CCD affected bees 'unusual' fragments of ribosomal RNA were discovered. Ribosomes are essential for the health of individual cells and therefore the whole bee. The Illinois research team suspect that a combination of insect viruses has caused damage to the bees ribosomes, which in turn

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has compromised the bee's immune system, allowing the bee to become more susceptible to insecticide poisoning and other such external factors.

GM crops pose a future problem for pollinators of all kinds as they do not require pollination. If they these crops become prevalent across the world, our once fertile fields will become desert habitats as far as insects are concerned.

What can we do to help? If we really want biodiversity (as propaganda from governments and councils insist) then both GM crops and monocultures need to be resisted. In a preference for large quantities of relatively cheap foodstuffs, we have evolved farming techniques that are anti-biodiverse. We need to ask ourselves what kind of world do we want to live, what kind of food do we want to eat, and then inform our politicians and media of our decisions.

What about our own gardens and public spaces? Many garden centres ape agricultural techniques by applying insecticides to the potted plants people buy for their gardens. A specific class of insecticide - [neonicotinoids](#) - is used in agriculture and garden centre plants. Concerns about their safety have led to these insecticides being banned in France, Germany and Italy. In the UK pesticide laws are amongst the most lax in Europe and very little research has been done about the concerns of pesticides on specific animals such as bees and humans and more generally on UK eco-systems and habitats.

Plants recommended for the garden that will attract bees are lavender, oregano, dill, yarrow, marigold, hyssop, borage, sage, chamomile and strawberry.

The Apothecary Shop in the Homend intends to run irregular garden plant sessions at the back of the shop, to highlight the plight of the bee and to recommend useful plants to those who are interested.

Useful Websites

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[Friends of the Bees](#)

[Bumble Bee Conservation Trust](#)

[Soil Association](#)

[Save Our Bees](#)

[British Bee](#)

Helpful Books

A World Without Bees - The Mysterious Decline of the Honeybee and what it means for us
Alison Benjamin & Brian McCallum, Guardian Books, 2008

The Barefoot Beekeeper Philip Chandler, Lulu, 2009

Towards Saving the Honeybee, Gunther Hauk

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Plants & Seeds sources

[The Organic Gardening Catalogue](#)

[Suffolk Herbs](#)

[Naturescape](#)

[Plant Wild](#)

[Caves Folly Organic Nursery](#)