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The Honey Bee Crisis of 2007

Escalating Honey Bee Decline Baffles Scientists

Feb 17, 2007 [Sally Odum](#)

The honey bee crisis in the United States has been escalating for several years, rising to "unprecedented" levels of honey bee losses between Oct 2006 and Feb 2007.

The honey bee crisis of 2005, which was blamed on the Varroa mite, decimated as much as 50% of honey bee populations in the US, but was weathered, overcome, and quickly passed out of most people's vocabulary. I wrote an article about it for Suite 101, which you can read [here](#). In it, I gave a fruit, vegetable, nut and wild plant list dependent upon insect pollination.

Approximately 80% of all insect pollination is accomplished by honey bees. According to the University of California at Davis publication "Don't Underestimate the Value of Honey Bees," the remaining 20% of other insect pollinators are drastically reduced in number as well, making one wonder if the problem is the varroa mite or something else affecting the broader insect world.

Honey Bee Pollination plays major role in Global Food Supply

The year 2006 passed seemingly without incident relating to honey bees and I breathed a sigh of relief. Why is it worrisome when bees die by the thousands? Three words: global food supply. The lowly honey bee is required for the pollination of a wide range of plants, affecting everything from clover (think cows) to fruits to vegetable seeds. Honey bee-pollinated crops represent more than \$15 billion annually to the economy. That does not even take into consideration indirectly affected items, such as beef, milk, cheese, wild animals, or birds.

Fall of 2006 Reveals Decimated Bee Colonies

The problem is that 2006 did *not* pass without incident—it passed without media-reported incident. It was in the fall of 2006 when a distressed Pennsylvania beekeeper, Dave Hackenberg, reported to researchers at Pennsylvania State University that he had lost about 2,000 hives. To give you an idea of how many bees that is—each hive contains around 50,000 bees in summer. The mysterious bee ailment was dubbed "Colony Collapse Disorder."

The last three months of 2006, beekeepers up and down the East Coast of the US were quietly reporting large bee losses. Alarm bells were ringing in the "beekeeper world." By January of 2007, it had spread beyond the Eastern US and Western states were also reporting bee losses. As beekeepers in colder regions start reporting their bee colony status in spring, the figures are expected to rise even higher.

Escalating Bee Decline for More than a Decade

This week, I've learned that the honey bee crisis in the U.S. is back and its worse than ever. Or did it ever really leave? Two types of parasitic mites invaded the US—tracheal mites in 1984 and varroa mites in 1987. Bee populations have been steadily declining ever since.

2007 Honey Bee Crisis "Unprecedented"

In February of 2007, I read the first mainstream media article I'd seen on this year's bee crisis, which said that beekeepers from 22 states so far have reported decimation of hives by as much as 80%, varying in degree of severity.

As I set out to find more information from leading authorities in the industry, I decided the best people to ask were the bee experts at the American Bee Federation. When I first clicked on their website's homepage, I was greeted with this quote from a January 2007 Penn State press release:

"An alarming die-off of honey bees has beekeepers fighting for commercial survival and crop growers wondering whether bees will be available to pollinate their crops this spring and summer..." The losses were called "unprecedented" by Penn State Agriculture Extension Associate, Mary Ann Frazier.

Cause of Colony Collapse Disorder Eludes Investigators

Although the honey bee crisis of 2005 was attributed to the varoa mite, the 2006-2007 malady is of unknown origin. Researchers have been unable to isolate a common cause. While they have found numerous disease organisms present in dying bee populations, along with a few common management issues, the common link affecting all the populations continues to elude investigators. Dennis vanEngelsdorp, acting state apiarist with the Pennsylvania Department of Agriculture said, "Preliminary work has identified several likely factors that could be causing or contributing to CCD. Among them are mites and associated diseases, some unknown pathogenic disease and pesticide contamination or poisoning."

University and federal researchers, state regulatory officials, cooperative extension educators, and industry representatives have joined together to research the current bee crisis. The beekeeping industry, including the American Beekeeping Federation, The Foundation for the Preservation of Honey Bees, and the National Honey Board are all actively engaged in the effort.

The Mid-Atlantic Apiculture Research and Extension Consortium (MAAREC) is "a regional effort to address the pest management crisis facing the beekeeping industry in the Mid-Atlantic Region." According to MAAREC, its mandate is: "Exploring the cause or causes of honey bee colony collapse and finding appropriate strategies to reduce colony loss in the future."

Emerging Global Pattern of Insect Pollinator Decline

It's hard for many to imagine how something as small and pesky as a honey bee could play such an important role in global food supply, but it does. Since the decline of insect pollinators fits into an [emerging global pattern of insect pollinator decline](#), shouldn't the current US honey bee crisis be investigated from a wider world view?

For continuing updates and further information on the honey bee crisis, see:

[MAAREC website](#)

[American Beekeepers Federation](#)

Penn State Podcast "[Honeybees in Crisis](#)"

[How to Hand Pollinate](#)

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Mar 20, 2006 [Sally Odum](#)

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Read my most current article about "[The Honey Bee Crisis of 2007](#)." There is a crisis underway but few people know about it. An estimated 40-60 percent of honey bees in the United States died or were severely weakened in 2005. California has the largest beekeeping industry and lost 50 percent of their honey bees in 2005. State governments, and even other countries (notably Australia), responded to the crisis of 2005, but it remains to be seen how agriculture will fare in 2006.

While the US weathered the honey bee crisis of 2005, the varroa mite, unseasonably warm winter temperatures (tricking bees into thinking it was spring), and higher prices for bee pollination continue to affect American agriculture in 2006. According to a March 8, 2006 article in BBC News, [Almond Farmers Seek Healthy Bees](#), "...in 2004, beekeepers could get, on average, \$54 for every hive they sent to almond groves in California. Last year, prices peaked at about \$85, and in 2006 there are reports of owners charging more than \$150." That increased cost, along with higher gas prices for trucking, will be passed along to consumers.

The unprecedented honey bee destruction has been blamed on the varroa mite. According to most authorities, the mites have become resistant to pesticides. Originating in Asia, the mite became a problem in the US two decades ago.

Many fruit, nut, vegetable, legume, and seed crops depend on pollination. Pollination is "the transfer of pollen from the anther to the stigma of a plant or flower in the process of fertilization. Pollination occurs when insects brush against and pick up the pollen from one flower and then carry it to another flower."¹

Per U.S. Department of Agriculture (USDA) statistics:

- **One-third of the human diet is derived directly or indirectly from insect-pollinated plants.**
- **80 percent of insect pollination is accomplished by honey bees.**

Other insects that accomplish the remaining 20% of pollination are also drastically reduced.²

The honey bee shortage affects apple growers in Virginia, almond growers in California (which produces 80% of *global* almond supply), and watermelon growers in Florida.

Some crops that *require pollination* are: apples, avocados, blueberries, cherries, cranberries, cucumbers, melons, oranges, grapefruit, pumpkins, squash, sunflowers, tangerines, and watermelon. Also, forage plants like clover and alfalfa need pollination (and cows need clover).

Perhaps the greatest value of honey bee pollination is **seeds** destined for worldwide distribution: **20 vegetables produce seeds *only* if their flowers are pollinated.**² Direct and indirect effects cannot be estimated: ornamental shrubs and trees, wild plants (on which wild animals and birds forage), beeswax, honey...

Unless the honey bee shortage is rectified, the United States may suffer a shortage in quantity and quality of pollinated crops, beef and dairy products. Already, it means higher prices. This may be great news for commodities traders, but it's bad news for families. Additionally, it would have a ripple effect in the world economy and global seed supplies.

There's an old farmer's saying: "Nature gives first warnings." Let's hope there is a speedy solution to the honey bee shortage, and that scientists figure out what other factors might be at work.

What can you do to help?

- Encourage beekeeping in your community.
- The American Beekeeping Federation has established a research and education foundation to collect private funds and direct them to bee research.
- Make pesticide applications to your vegetable gardens and any plants when bees are not present in the garden, usually at dusk or after dark. Consider natural pest control methods.
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Cooking With Honey

"Honey-Brined Chicken is an easy update to your average roasted chicken but the results are anything but average. Simply combine water, honey, salt, lemon slices and herbs and immerse the chicken in the brine, soaking for 12 to 18 hours. Then remove and roast as usual. The results are a plumper, moister and juicier chicken - even the leftovers will taste better! If you don't have time to brine, mix honey with equal parts olive oil or mustard and brush on meats as they grill. The honey adds a wonderful flavor and helps meat brown evenly."

---Courtesy The National Honey Board

Gardener's Tip: Pure honey is said to cure many ailments and prevent diseases. Ancient Egyptians advised putting it on wounds because of its antiseptic properties.

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Science News Article

Honey Bee Crisis extends from US to Britain and Netherlands

Sep 28, 2006 [Sally Odum](#)

Science News: A study by Jacobus Biesmeijer and William Kunin (Leeds University), showing declines in pollinators and insect-pollinated plants in Britain and Netherlands.



In July of 2006, an article appeared in *La Monde*, entitled, “**The Number and Variety of Pollinating Insects in Europe Are Diminishing Significantly.**” It was written by Christiane Galus. Rating hardly a blip on the radar of the international mainstream news, this article passed through the maze of media sources without notice by most of the world’s inhabitants. Since I was following the Honey Bee Crisis in the US as well, I paid attention.

Here is an excerpt:

“A study conducted by Jacobus Biesmeijer and William Kunin (Leeds University, United Kingdom) and a team of British, German, and Dutch researchers and published in the July 21 issue of Science confirms that the threat is serious. By studying different areas of Great Britain and the Netherlands, scientists observed that wild bees have paid the heaviest toll, with a 52% reduction in their diversity with respect to their situation in 1980 in Great Britain and a 67% reduction in the Netherlands...”

Now, those are two disturbing sentences, and it prompted me to go search current science news and read the scientific study cited. In conducting the investigatory scientific study, the team of scientists considered more than one million data points. **Here is an excerpt from the [abstract](#):**

“...we found evidence of declines (pre-versus-post-1980) in local bee diversity in both countries... pollinator declines were most frequent in habitat and flower specialists, in univoltine species, and/or in nonmigrants. In conjunction with this evidence, outcrossing plant species that are reliant on the declining pollinators have themselves declined relative to other plant species. Taken together, these findings strongly suggest a causal connection...”

See "**Parallel Declines in Pollinators and Insect-Pollinated Plants in Britain and the Netherlands**" (*Science*, 21 July 2006: Vol. 313. no. 5785, pp. 351 – 354).

You may **listen to the Science Podcast, ["Pollination in Trouble," an Interview with Dr. William "Bill" Kunin, University of Leeds, a co-author](#)** of the study.

A transcript excerpt from the interview:

*“...there were not only fewer species, there were **different** species, and that’s part of what raised concern...they tended to be losing habitat specialists, diet specialists, all the sort of specialist bees and hover flies, and the generalists were increasing. And then...we started looking at plants...we were surprised to see a pretty strong pattern of decline in the vast majority of the insect-pollinated plants...while the wind-pollinated plants and the self-pollinated plants were either stable or increasing...”*

When asked, “How worried should we be about this?” Dr. Kunin said it did not imply a global pollinator crisis, however:

"...It's the first time anyone's looked for national-scale declines in pollinators and in both the countries we looked for it, it was there...I'd be surprised if there aren't some similar patterns elsewhere, but again, people have to go look for them."

One can only hope that similar studies will immediately commence in the US, Canada, and other countries.

Click here to read my related articles [The Honey Bee Crisis of 2007](#)(US) [The Honey Bee Crisis in the US](#)

Read more at Suite101: [Science News Article: Honey Bee Crisis extends from US to Britain and Netherlands](#)
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