

# Mysterious Disappearance of Honey Bees

## Creating a Buzz



By Dan Burnett, Nature Center Manager, Penitentiary Glen Reservation

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While visiting Penitentiary Glen Nature Center in 2007, you may have noticed the absence of honey bees in our indoor observation hive. Our normally active hive succumbed to a recent phenomenon that is wiping out active colonies worldwide. According to estimates from the US Department of Agriculture, honey bees are vanishing across at least 35 different states, including Ohio, and no one really knows why. European and Canadian beekeepers have observed a similar phenomenon, although not as devastating. This poorly understood phenomenon has been dubbed **Colony Collapse Disorder** (or CCD). Along with severe weather and other factors, it helped kill 38 percent of the nation's 2.4 million bee colonies last year.

## The Symptoms

Penitentiary Glen's honey bees quite abruptly showed all the classic symptoms of CCD. Worker bees from the hive abruptly disappeared. Shortly thereafter, only the queen bee remained with just a handful of newly emerging worker bees and capped brood (bees will not normally abandon a hive until all the capped brood are hatched) and a presence of food stock. No build-up of dead bees in or around the colony was found. Also honey offered to healthy bees was not touched. Our weakened hive struggled to survive and died out in late spring. A second attempt at starting a new hive was unsuccessful. In my fifteen years of keeping bees at Penitentiary Glen Nature Center I have never seen something happen like this.

## WHY SHOULD WE CARE?

Bee pollination is a vital component of the \$15 billion in U.S. agriculture for specialty crops such as nuts, berries, fruits and vegetables. Approximately one mouthful in three in our diet directly or indirectly benefits from honey bee pollination. Did you know that honey bees pollinate 33% of all of our crops?

## The Mystery

The cause or causes of the syndrome are not yet well understood. Possible causes include environmental change, extreme weather, urban sprawl, malnutrition, and pathogens (i.e. disease), mites, pesticides, insecticides and herbicides. No one knows for sure. What is known is that reports of the problem are spreading. It also appears that CCD is much more prevalent in transported mass bee colonies used in widespread large crop pollination, than stationary organic hives.

A similar phenomenon occurred in the 1940s and again in the 1960s and was called “disappearing disease”. In general honey bee health has been declining since the 1980s with the advent of pathogens and pests. The spread into the United States of varroa and tracheal mites in particular, created new stresses on honey bees.

While the cause is still a mystery, researchers have made a few discoveries that may lead to a definitive answer.

## Here's What Local Beekeepers are Saying:

*“It looks better this year. My new bees are out pollinating the flowering fruit trees, crabapples and dandelions which is a good sign. All we can do is hope the bees work through this problem and recover. So far, so good.”*

Jack Burnett, Beekeeper  
Chardon, Ohio

*“No signs of CCD at Lake Metroparks Farmpark. Last spring's bees came through hale and hearty and over wintered fine with good numbers. There are plenty of bees and they have been very active so far.”*

Valerie Reinhardt, Horticultural  
Education Specialist  
Lake Metroparks Farmpark

*“Mother Nature knows what she's doing. Forty years ago something like this also happened, it was called autumn dwindle. This year we opened up our hives to find them 75% populated, full of happy, happy bees – much better than 2007 when it was the other way around.”*

Lucy Wellhausen (aka: The Bee Lady)  
O-H-I-O Honey Company, Kirtland,  
Ohio

## Here's What Local Bees Say:

*“Hmmm...”*

Which translates to: Stay tuned for the buzz!

## Is a Virus to Blame?

Researchers identified a little-known virus in Israel as a possible culprit in the decline of honey bees across the nation. Known as Israeli Acute Paralysis Virus (IAPV), it was present in bees that had succumbed to CCD. Scientists do not know how the virus got here or how to cure it. They do know that in 2004, U.S. beekeepers began importing bees from Australia. Australia may be a potential source of this virus.

### A POSSIBLE CAUSE

The fact that other healthy bees or parasites shun the emptied hives and remaining honey stores raises suspicions that some kind of toxin or chemical is keeping the insects away. Scientists believe a new pathogen or chemical product could be weakening the insect's immune system. The finger of suspicion is being pointed at a new class of pesticides used on plants, called neonicotinoids. These widely used pesticides don't kill bees but hamper their sense of direction, leaving them unable to find their way back to the hives.

### IS THERE A CELL PHONE CONNECTION?

Mass media attention played to the rumor that CCD was closely related to the proliferation of cell phone towers, but there has been no verification of that. This theory was linked to a small study in Germany that examined whether a particular base station for cordless phones could affect honey bee homing systems. There is no link between that study and the CCD phenomenon.

It appears that honey bees are plentiful so far this year in Ohio – good news for farmers who rely on bees to pollinate more than 70 crops, including apples, pumpkins and strawberries. Early reports suggest that 85% of honey bees across the state survived the winter. Last year CCD killed approximately 1 billion, or 72%, of Ohio's bees. It's too early to say that CCD is gone, as scientists are still struggling to understand the cause of the problem.

We introduced a new colony of Honey Bees to our observation hive at Penitentiary Glen Nature Center in early May. Time will tell if they are able to survive. Stop out and take a look for yourself—they will *bee* glad to see you!



## What Can You Do to Help Honey Bees?

- Don't use pesticides, especially at mid-day when honey bees are most likely to be out foraging for nectar.
- Plant good nectar sources such as clover, foxglove, bee balm, iron weed, and joe-pye weed.
- Stay informed, educate yourself and stay tuned!

