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### Honey Bee Collapse Now Worse on West Coast

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*“It's worse than last year, and last year was worse than the year before. So, it's bad. And there are a lot of good, big beekeepers that are having a lot of problems. I think we're coming in for a big train wreck.” - Gilly Sherman, Beekeeper*



Western honey bee, or European honey bee (*Apis mellifera*), gathering pollen from purple aster. 34% of American honey bees in commercial hives have disappeared this spring of 2008, in a persistent mystery known as “colony collapse disorder.”

**April 10, 2008 Gainesville, Florida** - On April 5, 2008, England's BBC News carried a report entitled, “U. S. Fears Over Honey Bee Collapse.” A California beekeeper, Gilly Sherman, was interviewed and he said sobering words: “It's worse than last year, and last year was worse than the year before. So, it's bad. And there are a lot of good, big beekeepers that are having a lot of problems. I think we're coming in for a big train wreck.”

I took that quote to Jerry Hayes, Chief, Apiary Section, Florida Department of Agriculture, and President of the Apiary Inspectors of America in Gainesville, Florida and asked for his comment.

#### Interview:

**Jerry Hayes, Chief, Apiary Section, Florida Department of Agriculture, and President of**

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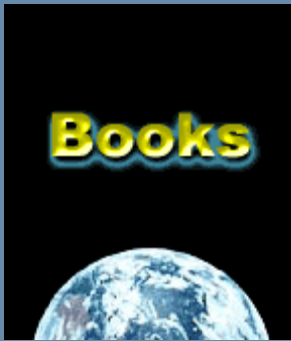
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**the Apiary Inspectors of America in Gainesville, Florida:** “Certainly West Coast beekeepers were more dramatically affected this year than perhaps East Coast beekeepers. Last year, East Coast beekeepers had the first and dramatic events happening to their bee colonies. Sometimes, the West Coast beekeepers said, ‘Well, it’s not happening to us. You must just be bad beekeepers.’ So, now the shoe is on the other foot and they are suffering as badly as anybody has been. Everybody is on an even playing field right now.

Bees are not healthy. Bees have not been healthy for a few years and they are becoming more unhealthy. The beekeepers, the industry that uses them as a tool, is in a precarious situation.

**SO WOULD YOU AGREE WITH THE BEEKEEPER QUOTED BY THE BBC NEWS, ‘I THINK WE’RE COMING IN FOR A BIG TRAIN WRECK’?**

We’ll never know these things until after the train wreck. It certainly does not look good. I’ve been reading some reports about whole populations of bats dying and disappearing in the Northeast. The quail population in the southeast has virtually disappeared. I don’t know if any of these things have parallels and links, but it certainly is interesting that something in the environment is impacting these other animals.

**WHAT IS THE CURRENT STATE OF COLONY COLLAPSE DISORDER IN THE UNITED STATES AND CANADA?**

## **34% Bee Loss in U. S. by Spring 2008**

The Apiary Inspectors of America (AIA), of which I am a part – we just completed a survey of 327 beekeepers and we came up with about a 34% loss rate over this past 2007 to 2008 winter season.

**THAT’S EVEN MORE THAN LAST YEAR?**

Yes, a little bit. [ 2007 estimated American loss was 25%.]

**GOING INTO THIS SPRING OF 2008, WHAT ARE YOUR GREATEST WORRIES?**

Beekeepers cannot continue to take these kinds of losses and rebound in any kind of way.

## **Cause of Colony Collapse Disorder?**

*“Unfortunately, we still don’t have a clear picture of why this is happening.”*

**THE LAST TIME WE TALKED, IT WAS THE ISRAELI VIRUS UNDER SUSPICION OF COMING INTO THE UNITED STATES THROUGH AUSTRALIAN BEES THAT HAD BEEN BROUGHT IN BECAUSE THE NORTH AMERICAN BEE POPULATION HAD BEEN WEAKENED. IS THERE EVIDENCE THAT THE ISRAELI ACUTE PARALYSIS VIRUS IS STILL CAUSING THE MORTALITY? OR IS THERE STILL SOMETHING TO BE FOUND? WHAT IS CAUSING ONE-THIRD OF ALL THE BEES IN THE UNITED STATES TO DISAPPEAR IN THE WINTER OF 2007 TO SPRING OF 2008?**

[ Editor's Note: See [090707 Earthfiles](#): Israeli Acute Paralysis Virus (IAPV) September 2007 journal, *Science*.]

Boy, if I knew that, I'd probably have a statue some place, Linda. Obviously it's all the issues that are still on the table right now. Viruses – whether it's the Israeli Acute Paralysis Virus, or other viruses that are known and impact honey bees? There again, pesticides, poor nutrition, stress whatever that is from moving bees back and forth, a shallow genetic pool in our managed bee colonies. Some how, all these things are interacting. Basically, we need more funds in order to hire smart people and expensive equipment to figure what is going on. Research is never quick.

**DID YOU EXPECT AN INCREASE IN THE DISAPPEARANCE OF BEES IN NORTH AMERICA?**

I was personally interested to find out if it was going to continue and to find out what was going to happen to our West Coast beekeepers that seemed to have dodged a bit of the bullet last year. I was hoping that it would not, but I knew that something like this just generally does not go away on its own.

**BUT ARE YOU SURPRISED THAT THE WEST COAST BEEKEEPERS ARE BEING HIT HARD NOW IN 2008?**

No, not really. You know how things spread – if this is a pathogen or something in which all populations are not hit equally. So, it was unfortunately their turn.

**HAS THE ISRAELI ACUTE PARALYSIS VIRUS BEEN FOUND IN THE WEST COAST HONEY BEES?**

Yes, it's there, but not at any dramatic levels. In fact, there's kind of an East Coast variant and a West Coast variant of the Israeli Acute Paralysis Virus. There's also the Kashmir bee virus that has shown up in quite large numbers. Then you add in all the other things we talked about that could cause the immune system collapse. All those things are interacting.

**SO, IN APRIL 2008, YOU CAN'T SAY EVEN NOW THAT IT IS THE ISRAELI VIRUS THAT IS RESPONSIBLE FOR MOST OF COLONY COLLAPSE DISORDER?**

No, because in the CCD, the Israeli acute paralysis virus was found in most of the samples and at the moment is considered just a marker. It was not present in tremendously high numbers. And we can't say it's the varroa mite because in CCD, varroa and trachea mites are in very low levels. The *Nosema* protozoan was found in less than 50% of the colonies. Unfortunately, we still don't have a clear picture of why this is happening.

## **Future Almond and Other American Crop Pollinations in Jeopardy?**

**WITH A 33% DISAPPEARANCE RATE SO FAR IN 2008, WHAT HAPPENS TO ALMOND POLLINATION AND CROPS BECAUSE THEY WERE STRETCHED LAST YEAR TRYING TO IMPORT ENOUGH BEES FROM THE EAST COAST AND AUSTRALIA TO GET THE ALMOND GROVES POLLINATED. WHAT HAPPENS**

## NOW WITH EVEN MORE BEES DISAPPEARING?

Well, almond pollination is over right now. And most of the bees fell apart during or towards the end of almond pollination. I think the almond guys got by in good shape, so they don't care as long as they get pollination for next year because this year is over with. To them, honey bees are an input, just like fertilizer, pesticides and fungicides. So, until next year, the almond growers probably don't care.

## WHAT HAPPENS TO ALL THE OTHER CROPS THAT ARE DEPENDENT UPON HONEY BEES, IF THEY HAVE FALLEN APART IN SUCH GREAT NUMBERS TRYING TO POLLINATE THE ALMOND CROP?

That's a great question. The bees are coming back to Florida now and we're talking about watermelon pollination. And then the bees will be moving north for blueberries and apples and cranberries. But yours is a good question and I don't have an answer for it at this moment in time.

## U. S. Headed for Reliance On International Food Imports

*"The USDA projects that something like 40% of our vegetables are going to be coming from China in 2012 or some date like that and the U. S. is going to be a net food importer in fifty years."*

I'd like to see people at the federal level and others realize how important honey bees are! But if people don't care where food comes from, if people are happy that food is at the grocery store and they don't care how it gets to the grocery store, then maybe all this concern is a moot point. People have to care about this. The USDA projects that something like 40% of our vegetables are going to be coming from China in 2012 or some date like that and the U. S. is going to be a net food importer in fifty years.

We already have someone who has us by the nose for energy production, oil (Middle East). And so now, we're going to turn our food production over to someone else? This all has larger strategic implications than just honey bees. This is talking about the food supply and how secure our food supply is in the United States?

So, I just hope that people realize how important honey bees are and somehow give support. We support sugar people. We have been throwing money at the corn people for years and everything else. Why not honey bees, if they are important?

## Implications for Increasing Decline of American Honey Bees?

*"If the almond people come up short, my guess is that probably the Mexicans will petition to bring their Africanized bee colonies across the border to fill that gap. And that will probably destroy the U.S. commercial beekeeping industry."*

YOU AND I HAVE BEEN TALKING ABOUT COLONY COLLAPSE DISORDER AND THE DISAPPEARANCE OF SO MANY HONEY BEES IN THE UNITED STATES AND CANADA NOW FOR A YEAR. I THINK I THOUGHT, AS A REPORTER, THAT BY THE SPRING OF 2008 THAT WE WOULD BE SEEING A RESTORATION OF BETTER HEALTH TO THE BEES AND THAT EVERYTHING MIGHT BE GETTING BETTER. THE FACT THAT IT'S GONE DOWN HILL EVEN MORE, THE FACT THAT EVEN MORE BEES HAVE DISAPPEARED THROUGH THE WINTER OF 2007 TO 2008, THE FACT THAT AFTER THE ALMOND POLLINATION THAT, TO USE YOUR WORDS, 'THE BEES ARE FALLING APART IN THE UNITED STATES.' WHAT HAPPENS WHEN EVERYTHING IS GOING DOWN HILL IN APRIL?

There might be crops that are potentially impacted and as the almond acreage grows, the almond growers will try to use every honey bee colony in the United States. If the almond people come up short, my guess is that probably the Mexicans will petition to bring their Africanized bee colonies across the border to fill that gap. And that will probably destroy the U.S. commercial beekeeping industry.

BUT WOULD YOU AND OTHERS IN AGRICULTURE ALLOW THAT TO OCCUR?

I'm just a mid-level civil servant. The almond people and value of the almond crop – money talks in our capitalistic society and the almond people will not be denied.

BUT DO YOU SERIOUSLY MEAN THERE COULD BE A DECISION THAT WOULD BE ONLY POLITICAL AND ECONOMICAL FOR THE ALMOND INDUSTRY THAT COULD END UP BRINGING IN AFRICANIZED BEES THAT WOULD DESTROY THE REST OF THE NORTH AMERICAN HONEY BEE?

It's very possible.

THAT IS ACTUALLY BEING DISCUSSED NOW AS AN OPTION?

I didn't make that up! (laughs)

I'M VERY DISTRESSED TO HEAR THIS.

Me, too.

## A Year from Now in 2009?

*“(Richard Adee, largest beekeeper in U. S.) is truthfully shell shocked and numb and doesn't know what to do. You can't replace 60,000 colonies overnight.”*

GIVEN THE FACT THAT THE PERCENTAGE IN THE NUMBER OF BEES DISAPPEARING IN 2008 IS EVEN HIGHER THAN IT WAS IN 2007, AND THAT THE BEE HEALTH IS NOT GOOD, WHAT WOULD YOU EXPECT TO BE THE STATUS A YEAR FROM NOW IN 2009?

I don't know. I don't know if this is Darwin in action and that this might go away as the weak are culled out and the strong survive – because if this continues on for another year or two, there won't be many commercial beekeepers left. There will be some small beekeepers left, but not of the size that can load up colonies on semi-trucks and take them over the United States.

The largest beekeeper in the United States [ Richard Adee Honey Farms, Brookings, South Dakota], I think lost 60,000 colonies out of his 80,000 colonies this past late winter and spring. He had something like 100 loads of empty equipment that he had to bring back from California. You just can't replace those kinds of numbers very quickly.

**WHEN YOU TALK TO THAT LARGE HONEY BEE KEEPER, WHAT HIS IS ASSESSMENT, TALKING TO YOU, ABOUT THE NEXT FEW MONTHS INTO NEXT YEAR?**

He is truthfully shell shocked and numb and doesn't know what to do. You can't replace 60,000 colonies overnight.

**WOULDN'T THIS RISE TO A NATIONAL SECURITY LEVEL? WE'RE TALKING ABOUT THE LOSS OF POLLINATORS THAT AFFECT SO MUCH OF OUR FOOD SUPPLY?**

You would think so. Obviously, Senator Boxer is meeting tomorrow. So, certainly at high levels of the government, there is interest. And of course, we're at war and spending a lot of money on the war, and money can be authorized, but is it appropriated? So, the whole political scene has to play out its course here in the way we handle things here in the United States.

**ARE YOU OPTOMISTIC OR PESIMISTIC ABOUT THE FUTURE OF HONEY BEES IN THE UNITED STATES AND CANADA?**

I'm pessimistic. We have a tendency to wait until a crisis happens in western civilization. We might lose control of our food supply at some point.

**IF ONE-THIRD OF THE HONEY BEE POPULATION IN THE UNITED STATES DISAPPEARED IN THE 2007 TO 2008 WINTER-SPRING, AND IF NEXT YEAR, THE PERCENTAGE CLIMBS TO ABOUT A 50% LOSS, HAS THERE EVER BEEN A TIME IN THE HISTORY OF THIS COUNTRY IN WHICH HALF OF THE HONEY BEE POPULATION DISAPPEARED AND WAS ABLE TO COME BACK?**

Boy, not that I'm aware. We are in a precarious situation strategically for maintaining food supplies for our population. We need to have somebody at some level decide that honey bees are important. It's like a lot of other agricultural industries in the U. S. – the Chinese have basically wiped out the American apple industry; the Brazilians have virtually wiped out the citrus juice industry; and these trends continue. Maybe this is the natural order of things.

**DOSN'T IT SEEM THAT THIS WOULD BE ABSOLUTELY THE OPPOSITE OF THE NATURAL ORDER OF THINGS?**

Yes, I would agree with you, but I'm a pragmatist and the low-cost producer gets the orders.

It doesn't make any difference where it's produced or how it's produced. Look at the Chinese goods that have come in over the last year and there are other scary things coming in, not only from them but other countries that don't have quite the regulations and pesticides and chemical oversight that we do.

## Genetically Modified Crops Could Also Be Killing Honey Bees

IS THERE ANY MORE HARDER DATA LINKING THE GENETICALLY MODIFIED CROPS TO THE WEAKENING AND DISAPPEARANCE OF THE HONEY BEES?

Yes, that's certainly being looked at. In fact, I read an article the other day talking about some genetically modified crops that had the BT toxin in it (genetically modified crops with built-in pesticide) and they found that with the BT toxin, there are a couple of different toxins involved, and one toxin they found was actually opening up the cell walls of insects and animals to allow this second toxin in to affect it. So, we don't understand what we do - and places such as Monsanto.

So, we're going down a precarious path and we don't know everything. Unfortunately, we will make mistakes as human beings, but the repercussions as things grow and become more global and widespread is that the repercussions will be more severe and more dramatic.

SO, WHILE WE ARE PROMOTING A GM FOOD INTO THE FUTURE ON THE ONE HAND IN GENETICALLY MODIFIED CROPS, WE COULD BE KILLING THE VERY INSECT THAT KEEPS PLANTS ALIVE.

Yes, but there again, if the seed companies can develop plants that don't need insect pollinators, and keep selling seed to the farmers, maybe that's the goal.

WHAT I'M HEARING IN YOUR VOICE AND YOUR WORDS IS THAT YOU ARE FEELING AND SENSING THAT THIS IS A VERY DEPRESSING SITUATION WITH VERY LITTLE LIGHT AT THE END OF THE TUNNEL.

Boy, is that coming through my voice? I'm sorry, but yeah, it is. I'm sure there's a light at the end of the tunnel, but I can't tell if it is an answer, or a train coming down the track.

WHICH COMES BACK FULL CIRCLE TO THE BEEKEEPER WHO SAID TO THE BBC THIS WEEK, 'I THINK WE'RE COMING IN FOR A BIG TRAIN WRECK.'

It's possible. We'll know in the future. But the take home message is: honey bees are not healthy and we, at this moment in time, have no way to make them healthier."



On March 29, 2007, Brent Halsall, President, Ontario Beekeeper's Assoc., Greely, Ontario, Canada, opened his hives and found about 40% of all his bees dead - some dried up; others fresh as if not long dead. Image © 2007 by CBC.

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### More Information:

For further information about honey bees, colony collapse disorder (CCD) and other threatened earth life, please see related Earthfiles reports below in the [Earthfiles Archives](#):

- 02/29/2008 — Mysterious Bat Deaths in New York, Vermont and Massachusetts
- 01/18/2008 — Amphibians Dying Out At Alarming Rate
- 10/13/2007 — Now Bumblebees Are Disappearing, Too.
- 09/26/2007 — North American Honey Bees Still Weak
- 09/07/2007 — Honey Bee DNA Study Finds Australian Virus in Colony Collapse Disorder
- 06/28/2007 — Hackenberg Apiary, Pennsylvania - 75-80% Honey Bee Loss in 2007. What Happens If Colony Collapse Disorder Returns?
- 05/04/2007 — Environmental Emergency Updates: Part 1 - Spreading Honey Bee Disappearances - Nosema ceranae Not the Answer?
- 04/06/2007 — Collapse of Honey Bees in U. S., Canada and 9 European Countries
- 03/22/2007 — Genetically Modified Crops: Playing Dangerous Genetic Roulette?
- 03/17/2007 — Honey Bee Disappearances Continue: Could Pesticides Play A Role?
- 02/23/2007 — Scientists Hope "Amphibian Arks" Can Save Frogs and Toads
- 02/23/2007 — Part 1: Earth Life Threats - Alarming Disappearance of Honey Bees
- 08/26/2005 — What Is Killing Amphibians Around the World?
- 06/25/2005 — "Junk DNA" That's Not Junk
- 08/27/2004 — Global Warming Impact On Birds - More Extinctions Expected
- 12/22/2001 — Scientists Warn That Climate and Earth Life Can Change Rapidly
- 11/26/2000 — Environmental Updates
- 11/12/2000 — Update On Increased UV Radiation and Amphibian Decline
- 05/27/1999 — Amphibian Decline - Parasites and Increased UV Radiation
- 02/28/1999 — Chickadee Beak Deformities in Alaska



## Websites:

AAAS Science Journal: <http://www.sciencemag.org/cgi/content/summary/317/5843/1304>

Mid-Atlantic Apiculture Research and Extension Consortium (MAAREC):  
<http://maarec.cas.psu.edu/>

Colony Collapse Disorder (CCD):  
<http://www.ento.psu.edu/MAAREC/pressReleases/CCDSummaryWG0207.pdf>

Apiary Inspectors of America (AIA): <http://www.apiaryinspectors.org/>

Biology of Honey Bees: [http://plantphys.info/Plants\\_Human/bees/bees.html](http://plantphys.info/Plants_Human/bees/bees.html)

Varroa Mites: <http://www.uky.edu/Ag/Entomology/entfacts/struct/ef608.htm>

Honey Bee Tracheal Mites: [http://creatures.ifas.ufl.edu/misc/bees/tracheal\\_mite.htm](http://creatures.ifas.ufl.edu/misc/bees/tracheal_mite.htm)

National Bee Loss Survey: <http://beealert.blackfoot.net/~beealert/surveys/index.php>

American Beekeeping Federation: <http://www.abfnet.org/>

American Honey Producers Assoc.: <http://www.americanhoneyproducers.org/>

The Xerces Society (Pollinators At Risk):  
[http://www.xerces.org/Pollinator\\_Insect\\_Conservation/pollinators\\_at\\_risk.html](http://www.xerces.org/Pollinator_Insect_Conservation/pollinators_at_risk.html)

American Assoc. of Professional Apiculturists:  
<http://entomology.ucdavis.edu/aapa/aapapubs.cfm>

*Bee Culture*, The Magazine of American Beekeeping  
<http://www.beeculture.com>

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