

Conservation Watch

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POLLINATORS IN PERIL – THE MYSTERY OF THE DYING BEES

A strange thing is happening all over the United States, indeed, all over the world. And, as yet, no one knows why. Our most important pollinators, the commercially critical western honey bees, are disappearing and, with them, perhaps, a crucial connector to our food supply. This mysterious phenomenon, in which worker bees in a western honey bee colony abruptly disappear, is called *Colony Collapse Disorder*, or *CCD*, and it is spreading rapidly. As reported in the magazine, *Science*, 9/6/07, The U. S. Department of Agriculture's chief scientific research agency sees this developing into a serious problem if no treatment is found – and found soon.



Pollinators – bees, wasps, butterflies, bats, hummingbirds. [Photo from USDA Forest Service.]

Here's the Story

A pollinator is any animal that moves pollen from one plant to another - think butterfly, hummingbird, beetle or bee. In most plants, pollen is necessary for the production of seeds and fruit. Our wild pollinators are disappearing worldwide and, thus, there are not enough indigenous pollinators to produce commercial crops. This means that we are dependent upon commercial honey bee hives. But, since the fall of 2006, commercial beekeepers have reported unusually high and rapid losses of 50% to 90% of their honey bee colonies, sometimes within a matter of weeks. These losses can be a serious threat to our agricultural economy and, thus, to our food supply. CCD has been reported in thirty-six states as well as Europe, Canada, India and Brazil.

The honey bee is our most important pollinator because it is a “floral generalist”, meaning that, unlike other more particular pollinators, it will feed on almost anything that is blooming, and it is crucial to our agricultural economy. In 2000, the total U.S. crop value wholly dependent on honey bee pollination was estimated to exceed \$15 billion, representing 1/3 of our total crop species.

Growers have tried to do without bees by using other insects or bee populations, and have even tried ingenious inventions from giant blowers, helicopters, or mortar shells to spread pollen across the plants. But, thus far, the honey bee remains the most efficient pollinator. It is the workhorse of the agriculture industry.

Honey bees are not native to the Americas. They were brought here by the earliest colonists. They colonized throughout the U.S., but the wild honey bee, once common across the country, has nearly disappeared due to habitat loss, pesticide use, climate change and other weakening factors such as introduced pathogens. As May Berenbaum, a professor at the University of Illinois, recently characterized the current problem: “We can't count on wild pollinators because we've so altered the landscape that many are no longer viable.” Commercial beekeepers, who travel with their hives from state to state fulfilling pollination requirements, add the problems by spreading diseases and undermining the health and diversity of the bees.

Colonies with CCD appear healthy as few as three weeks prior to collapse. But there is an insidious intruder. Bees in a healthy hive will not normally abandon the hive until the young bees have hatched. However, in hives affected by CCD, the adult bees “disappear” leaving a box full of honey, pollen, an unhatched brood, a queen, and sometimes a few worker bees. There are no dead bees inside the hive or on the ground beside the colonies. The question remains: where have they gone, and what made them leave?

The exact cause or causes are unknown but it is now believed that bees suffering from CCD are infected not with one pathogen but with many. Their immune systems are weakened by malnutrition, pesticides, pathogens, mites, or genetically modified crops and are finally and fatally compromised by a particular pathogen or “trigger”. This pathogen is probably a mutated virus acting as an intestinal parasite. It is suspected that the virus, known as *Israeli acute paralysis virus*, a virus previously unknown in the U.S., entered the country on imported bees. It could be the cause of death in millions of honey bees. Scientists are now attempting to infect honey bees with the virus to confirm that it is the killer.

Laurie Davies Adams, Executive Director of the Co-Evolution Institute, emphasizes the importance of promoting pollinator conservation and health, and the necessity of supporting

the whole network of pollinators, not just the honey bee, with research and habitat protection. She stresses the importance of helping the stock become more selective and therefore stronger, and encourages good large scale migratory beekeeping practices. Ms. Adams supports making foraging areas available so bees can have access to healthy pollen en route. She sees CCD as a significant wake up call. "The current CCD problem alerts us to the simple fact that we can no longer take honey bees and other insect and animal pollinators for granted," she warns.

In a recent paper, Dr. Jamie Ellis of the University of Florida wrote, "The loss of bees could signal a decline in the health of our environment. Honey bees are biological indicators, meaning that their status is a reflection of the health of the general environment. If true, bee losses may be the beginning of a much larger environmental issue."

"If the bee disappears from the surface of the earth, man would have no more than four years to live. No more bees, no more pollination, no more plants, no more animals, no more man." (A quote widely attributed to Albert Einstein, but actually, the source is unknown.)

[Article developed from the GCA Conservation Committee Endangered Species & Invasives Report – September 2007, authored by Audrey Platt.]

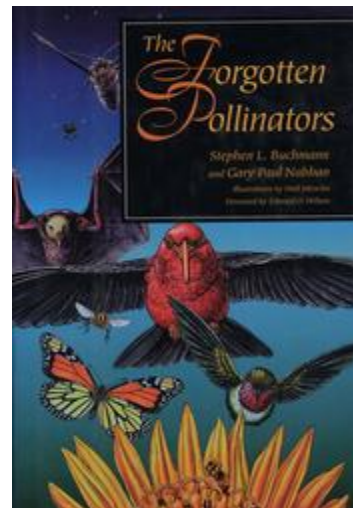
*Audrey Platt, Trustees' Garden Club (Zone VIII)
GCA Conservation Committee – Vice Chair, Endangered/Invasive Species*

Book Review

The Forgotten Pollinators by Stephen L. Buchmann and Gary Paul Nabhan

Want to know more about the fascinating topic of pollinators? Read [The Forgotten Pollinators](#) by two authors who are ardent naturalists and experts on the subject. The book explores the vital relationships between plants and pollinators. The authors present a lively account of the ecological and cultural context of the relationships. Humans take for granted the timeless and valuable work that pollinators do. The book focuses on raising awareness to the threats to our pollinators. It leaves the reader determined to do something to keep the fabric of these relationships intact.

Editor



Got Milk?

Since the 1960's, the federal government has set a minimum cost to the consumer for a gallon of milk. According to Adam Gorlick of the *Sunday Telegram* in Worcester, Massachusetts (March 17, 2007), that price - \$1.16 last year - was not enough to cover the cost of producing milk in Massachusetts, which he estimates to be \$1.60. He attributes this problem to mega dairies that have opened in California and the southwest in the past few years.

The alternative for dairy farmers is to turn their herds into organic herds. Demand for organic milk is growing dramatically and brings a bigger return to the dairy. However, to transform a

herd from conventional to organic takes a minimum of three years. The reason why most people buy organic milk is to avoid recombinant bovine growth hormone (rBST), a synthetic growth hormone. When this product, manufactured by Monsanto, was approved by the F.D.A. in 1993, it was eagerly adopted by many dairy farmers to increase the yield of milk from their cows. It came with a new set of problems, however, such as increased mastitis. Some farmers in Maryland shied away from it out of concern for their cows and the increased hours of milking.

It would appear that the marketplace is changing. Another type of milk is now becoming popular - milk from cows that are not given rBST, but are not raised according to organic standards either. By labeling milk free of the artificial hormone, the dairy industry can ride the popularity of natural foods, without the greater expense and special feeds required to produce milk that can be fully certified as "organic." In January, 2007 the Board of California Dairies Inc. voted to ask its members to discontinue the use of the hormone. This cooperative ships 50 million pounds of milk a week. (*San Francisco Chronicle*, 3/25/07)



Barbara Kingsolver's wonderful book *Animal Vegetable Miracle* (See *Conservation Watch*, Summer, 2007) brought another milk-related issue to the attention of the public. Much of the organic milk that we see in our supermarkets is ultra-pasteurized. This process brings the milk to a temperature of 280 °F and renders the milk so sterile it remains usable for 55 days! This very high heat treatment is often the only available choice in the organic milk section. You can identify it by the long shelf life listed, usually 3-4 weeks as opposed to 1 week for traditionally pasteurized milk. An alternative product available in the mid-Atlantic region is Grass Fed Dairy Milk, labeled "Natural by Nature" (<http://www.natural-by-nature.com>). It is available at Whole Foods. It is minimally pasteurized using "Hot Temperature/Short Time" (HTST) process which involves bringing the milk to a temperature no higher than 165 ° F. To find a local supplier of grass-fed milk and meat go to Eatwild.com.

Additional Sources:

Wikipedia, wikipedia.com

The Environmental Working Group http://farm.ewg.org/farm/farms_by_state.php

*Susie Wilmerding, Garden Club of Philadelphia (Zone V)
GCA Conservation Committee - Vice-Chair, Agriculture*

Just Say No to Cypress Mulch

It is fall and all good gardeners are mulching – but, NOT WITH CYPRESS MULCH.

Contrary to popular belief, cypress mulch is not as effective as other mulches. Only the 'heartwood' from mature cypress trees is rot and termite resistant. The young trees now being cut to feed the growing cypress mulch industry do not have these qualities and cypress logging, often an illegal activity, is destroying Louisiana's forested wetlands. Up to 80% of the cypress wetland forests of Louisiana will never regenerate if cut, even if they are artificially replanted.

The Save Our Cypress Coalition, a group of environmental organizations, has been publicly pressuring the major retailers Wal-Mart, Home Depot, and Lowe's to stop selling cypress mulch since November 2006.

This September Wal-Mart Stores, Inc. informed its suppliers that, effective January 1, 2008, the company will no longer buy and sell cypress mulch that is harvested, bagged, or manufactured in the state of Louisiana.

GCA has power. How can we help?

- Act: don't buy cypress mulch.
- Inform: gardening friends and local nurseries not to buy it.
- Visit: <http://www.saveourcypress.org/> for more information.
- View: <http://www.youtube.com/watch?v=U-Ofg8z-q6A> to see the damage.



*Kathy Gillespie, Pasadena Garden Club (Zone XII)
GCA Conservation Committee -Vice-Chair, Forests/Redwoods*

Think Global, Buy Local!

Massachusetts Club Encourages Buying Locally Grown Food

Conservationists in the Worcester Garden Club used the club's annual program book to include a guide to sources for locally grown food (fruits, vegetables, milk, eggs, and meat) to promote Central Massachusetts farmers. The idea occurred to them at the NAL meetings in Washington when they met with U.S. Representative James McGovern. Their Congressman was leading efforts to shift some of the '07 Farm Bill funding to small, local farms and orchards. Government support for agribusiness currently goes for such commodities as corn, cotton, rice, sugar, and wheat. By buying locally grown produce, consumers financially support local farmers, while protecting the open spaces they farm. The club's Conservation Committee compiled their list from their knowledge of nearby farms, and from the Massachusetts Department of Agriculture web site for Farmers' Markets.

*Nancy Wilson, Conservation Co-Chair
Worcester Garden Club (Zone I)*



[Photo by Lisl Dennis.]

Connecticut Club Stages Their Own Farmers Market

In Simsbury, Connecticut, members of the Connecticut Valley Garden Club put on a “Farmers Market” as part of a garden tour held on June 15 and 16 of 2007. The Horticulture Committee offered tender perennials and garden ornaments for sale to give tour-goers a plant-oriented shopping experience.

Club members grew over 100 varieties of vegetables, herbs and annuals from seed to sell at the market. Most plants were heirloom (in the trade over 50 years) but all were open-pollinated, not genetically modified or hybridized. In order to emphasize biodiversity they grew a number of varieties of the same species, for example; 18 tomatoes, 14 peppers and 9 beans. They offered most of the vegetables that one would look for in a supermarket with the exception of root vegetables. In the herb and flower area they offered varieties that were unusual and not readily available. Most seed used was organic. They started the seed in organic plugs and then transplanted into “Cow Pots” (biodegradable planting pots made from composted cow manure) from Freud Farm in East Canaan, Connecticut, using locally sourced organic soil.

Another component was arranged by the Conservation Committee. Their goals included: increasing knowledge of and interest in locally grown food, raising awareness of the lack of species variety in commercially grown food, the benefits of biodiversity in food as in other areas and encouraging tour-goers to grow non-commercial plants. A presentation board with 18 Power Point slide printouts in bullet-point format was displayed. It covered topics such as the benefits of eating locally grown food, the value of heirloom/open-pollinated food and plants, and the importance of promoting biodiversity.

The Farmers Market gave the club a great format to interact with the tour-goers and educate the public. All plants were labeled with the plant description along with their growth habits. These labels prompted many questions. A number of people were tempted to try growing veggies for the first time!

Club members felt the market was a great success, especially from an educational perspective. The Power Point presentation can be downloaded to a disk. If readers are interested, please contact Sara O'Connell at sdocooks@comcast.net.

*Sara O'Connell, President
Connecticut Valley Garden Club (Zone II)*

Global Warming Strategies – What Can We Do?

The question about global warming has turned from whether to when. Climate is changing globally, carbon dioxide is the culprit, and anything we can do to reduce our energy consumption becomes more and more significant. How can conscientious individuals act in carbon conscious ways? They need to consider every possible strategy, and the time is now. Clearly if we're not part of the solution, we're part of the problem.

To put our role in perspective, know that one American produces the same amount of greenhouse gas emissions as four and a half Mexicans, 18 Italians, or 99 Bangladeshis. We lead the world in energy demands, and the time has come for each of us to look closely at how we live, what we drive, what we eat, whether we're demanding that our towns build green, and - perhaps most important of all - what kind of messages about global warming are we sending to our legislators.

Here are some suggestions for garden club members to consider:

- Change from incandescent light bulbs (80% heat, 20% light) to compact fluorescents, which use two thirds less energy, generate 70% less heat, and last up to ten times longer. Compact fluorescent lamps (CFL's) contain a very small amount (5 mgs) of mercury, so don't send them to a landfill, but store them safely until your town recycles them. Since they last so long, this shouldn't be a problem. Regarding mercury, a traditional power plant will emit 15 mgs of mercury to power one incandescent bulb. Of note is the fact that Australia is imminently banning all incandescent bulbs.
- If you need a phone number, where do you find it? Perhaps you find it on your computer screen. If you do, call your phone company and tell them you don't want any more phone books. These books represent 10% of the waste stream.
- Commercial car washes use up to 100 fewer gallons of water than you would at home – and often recycle their water as well. Don't wash your car at home.
- Go to the website of your power company and see if they offer a clean energy option. Often, for a minimal additional amount, you can receive 50 to 100% of your power from renewable resources – thus encouraging the development of more demand for these sources. An additional benefit here in Connecticut is that for every 100 people who sign up for clean energy, one solar panel is delivered and installed on a public building in our town. The same website will have suggestions for saving energy and often offers energy audits of your home.
- Use programmable, energy efficient, thermostats and change the temperature up or down ten degrees when the house is empty, or when everyone is sleeping. Be sure

- your hot water heater is well insulated, because typically it represents 18% of your energy bill.
- Did you realize computers and their peripherals, televisions, PDA's, telephones, faxes, caller ID's, and cell phone chargers, ALL draw energy if they are plugged in? Consider putting all those plugs into surge protector power strips, and turn them off at night . And if you're not charging your I-Pod, remove that plug from the outlet. Using a screen saver actually uses considerably more energy than just letting your computer go to sleep.
 - Recycle. A year's worth of newspapers weighs nearly half a ton per household. Every ton recycled saves 17 trees, 7000 gallons of water, and keeps 60 pounds of pollutants – often chlorine among them – out of the air. Of course for gardeners, the ultimate recycling is composting, the benefits of which are healthier gardens, no need for chemicals, and it's free!
 - Our communities depend on garden club members a great deal. Leverage that awareness. When it's time for new public buildings, encourage your town to build green. Public buildings are a way of teaching our residents that using less energy is a priority. That's what **green architecture** is all about. Whether it's using geothermal energy, solar panels, composting toilets, sustainable products like cork and bamboo for flooring, lighting with CFL's – energy savings abound. We need to convince public officials – and the public at large – that while the initial costs may be somewhat higher, the payback is often as soon as five years. After that energy savings will accrue year after year for the entire life of that building. Be informed about federal and state rebates for using green technology.
 - Take a serious look at how you garden. Replace some of your lawn with native plants, which provide food and cover for birds and animals; take steps to conserve and protect water resources; use fertilizers and pesticides very carefully and minimally; plant trees and shrubs in strategic locations to mitigate hot summer sun and cold winter winds.
 - Support your local farmer – be a **localvore**! The food is fresher and tastes much better. Twenty percent of our country's energy is spent getting food to market.
 - Go to www.gcamerica.org, and read the Position Paper on Global Warming. Use it to educate your state and federal legislators. Send it to them. The need for responsible legislation has never been clearer. Call your legislators and tell them how important this issue is for you. If they don't hear from us, how will they know? Rest assured they will hear in depth from the 100,000 or so lobbyists, a majority of whom are not encouraging the kind of legislation we need. Remember, democracy is not a spectator sport!

*Carol Stoddard, Ridgefield Garden Club (Zone II)
Advisor, GCA NAL Committee*

[For references, questions, or comments, readers may contact Ms. Stoddard at stodnoel@sbcglobal.net.]

Billboard Disaster

If you are lucky and live in Maine, Vermont, Hawaii or Alaska you have no billboards. They have been banned by law. The rest of us have a problem.

The Highway Beautification Act of 1965 is a regulation stipulating the requirements for billboards along our nation's highways. Our Federal Highway Administration is ignoring the clear language of this law by not enforcing it. In fact, the agency is in the process of issuing a guidance memorandum that will permit construction of thousands of billboards, including digital billboards, along our interstate highways. The trend is toward huge digitalized billboard screens that will be programmed to flash ads in a driver's vision as he passes by.

Loopholes in this act have already allowed 450,000 billboards to be placed along our major highways since the original Highway Beautification Act was passed. Nonconforming billboards have remained decades after they should have been torn down. The billboard industry has cut down trees on public right-of-way to provide view corridors for signs constructed on private land.

Many state highway planners seem to be at war with the very concept of beauty. Scenic America is an organization that has the beautification of America as a first priority. It was founded 25 years ago by several GCA women that included Ellie Kelly and Marion Thompson Fuller Brown. (Marion is presently being honored for her work as she celebrates her 90th birthday.) Visit Scenic America at www.scenic.org, and use it as a resource to see what the billboard issues are in your area.



As you go about your daily driving or take a trip, notice the billboards as you travel the highways. Then contact and support your local group that is acting to clear billboards and make us a country that values its innate beauty.

*Jane Herrmann, Diggers Garden Club (Zone XII)
GCA NAL Committee
Vice-Chair - Transportation Corridors and Billboards*

Book Review Follow-Up

In the last issue *Conservation Watch* reviewed the book [Animal, Vegetable, Miracle](#) by Barbara Kingsolver, the noted novelist. With her husband and daughter in tow, Ms. Kingsolver tells the story of how they vowed to eat locally – growing and raising nearly all their own food and purchasing the rest from local purveyors. They do it all, from coaxing turkeys to breed to canning home grown tomatoes. Readers, like many of you, have shared in Kingsolver's joy in reconnecting with the land. The book, a call to arms, includes the phrase by Kingsolver, that the U.S. is "a nation with an eating disorder." This month, Barbara Kingsolver was designated as Bon Appetit magazine's Food Writer of the Year. Who would have thought that someone writing a conservation book could be the food writer of the year? [Source: "Bon Appetit Awards: Barbara Kingsolver, Food Writer," [Bon Appetit](#), Oct., 2007, pg. 56.]

Editor

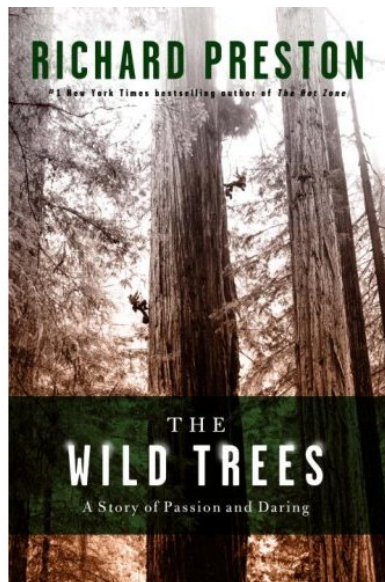
Book Review

The Wild Trees -A Story of Passion and Daring
By Richard Preston

Have you ever stood beneath the canopy of a huge, seemingly silent tree and wondered what was going on up there? In The Wild Trees, author Richard Preston, gives us the answer - a lot!

Preston is best known as the author of The Hot Zone, a 1990's non-fiction bestseller, about the frightening and devastating Ebola virus. In The Wild Trees Preston unfolds the story of a group of somewhat eccentric young adults who have a romantic obsession with climbing the tallest trees in the world - the coastal redwoods (*Sequoia sempervirens*) of Northern California. Some of the characters start out with a love of nature and the unknown and evolve into botanists and teachers. Others just love to climb. Until Preston published this book, much of what takes place in the canopy of these giant redwoods had been a mystery left to imagination.

Although Preston describes climbs in forests all over the world - including Australia, Scotland, and even his own backyard - the book focuses primarily on the giant redwoods. The tallest of these redwoods are estimated to be up to 379 feet tall (35 stories high), up to thirty feet wide, and more than two thousand years old. The locations of the tallest trees are a well kept secret. Preston describes these enticing tree canopies "as coral reefs in the air."



Naturally, many of these young tree climbers wanted to discover the largest living tree for the record. The most accurate way to measure the height of a tree is by climbing to the top and dropping a measuring tape to the ground - which isn't easy!

The main characters, Steve Sillet and Marie Antoine, always loved climbing and adventure and have a special passion for science. They are part of a small group of botanists to be the first to really study and document the ecosystem in the redwood canopy. Through them we discover this amazing environment of plants and animals that never touch the forest floor. Included are salamanders, earthworms,

huckleberries, ferns, mosses and lichens. This canopy of life is connected from tree to tree by branches that have grown together over the years. Scientists believe that this ecosystem may contain half of the new species being discovered in the world today!

Even though 96 percent of the ancient redwood forest has been destroyed by logging, there is still much to discover in this rugged terrain, which is still largely unexplored. Tree canopy science has opened up a new frontier for botanists, biologists and historians. Richard Preston makes this new frontier come alive and does a masterful job of combining drama (yes, the two main characters get married in the trees!) and science and making us aware that there are still a few special places on this earth that are quiet, magical and undiscovered. After reading this insightful book standing under a tall tree and looking up will never again be the same!

*Ann Lyman, Piedmont Garden Club (Zone XII)
Vice-Chair, Forests/Redwoods, GCA NAL Committee*

Master Naturalist Movement Going Nationwide

Many GCA gardeners are familiar with the Master Gardeners programs in their states that are offered by local county cooperative extension agencies. Now 25 states throughout the US are offering a similarly structured program for those of us who love roaming in the wild and getting our hands and boots dirty. It is called the Master Naturalist Program. The purpose of the program is to build a well-informed corps of volunteers to provide education, outreach, and service dedicated to the management of natural resources and natural areas within their communities.

Men and women in Virginia are signing up for this program in their local areas as fast as they can. Twenty-one chapters have been established since 2006 and more are coming on board each month. Five state agencies are sponsoring the program and supplying instructors for the basic training for volunteer project opportunities. The Master Naturalists program fits in very well with GCA's Partners for Plants as its objectives include producing active citizen scientists and stewards. In August 2007 Master Naturalist chapters supplied a third of the 19 volunteers for the GCA-sponsored Medicinal Plant Project at Mt. Rogers, Virginia.

Becoming a Master Naturalist is not a casual commitment. Forty hours of course work are required for certification, as well as an additional 40 hours of volunteer time on chapter approved activities and 8 hours of advanced training. A wide variety of activities qualify for volunteer hours including chapter administration work, as well as outdoors monitoring, trail work, or education projects for kids and adults.

I can attest to the value of the program. I recently completed my forty hours of course work. Each session had a different instructor who was a professional in the field covered. I LOVED every minute of the classes, including the homework, and now have a whole set of new friends who enjoy nature as much as I.

Check with your local county cooperative extension agency and see if your state has a program. Encourage them to get involved if there is not one underway. States with established programs include Texas, Virginia, Arizona, Florida, West Virginia, Illinois, Missouri, Wisconsin, and Minnesota. Other states are just getting started. Google *National Master Naturalist Movement* and your state and learn more.

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Conservation Watch

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Elva Busch, Editor