

# Hedgerows

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Support Local Land Conservation



2007 winner John Hennessey is presented a check for \$1,390. Present are Caryl Brackenridge (left) and Chris Steffan.

## NEW 50/50 Raffle for 2008

### Help Us Preserve Open Space and Continue the Restoration of the LaTourette Mill

*Last year we introduced our first 50/50 fundraising raffle to help meet expenses. It was a success that has prompted us to do it again. Tickets may be purchased from any trustee or by mail.*

The tickets are \$10 each and the winning prize will be 1/2 of all funds raised. Will it be \$500, \$1000, \$5000, \$10,000 or more? That question will be answered on October 4, 2008 when we draw the lucky winning ticket.

While it is not as lucrative as a \$200 million mega millions jackpot, your odds are much better... plus you will help a very good local cause. Please be generous and purchase your tickets when you see us, or go online to <http://www.WTLT.org> for more information.

Contact Chris Steffan at [obadiah1750@hotmail.com](mailto:obadiah1750@hotmail.com) for tickets

thank you,  
The Board of Trustees

The topic this issue is Bees. Those unsung heroes of the insect phyla which work feverishly to provide us with vegetables and fruit through the pollination activities they routinely perform on a daily basis. But what if there were no more Bees...!

## Colony Collapse Disorder

by Keith Hayes

*Count all the bees in the hive; chase all the clouds from the sky...if Christopher Robin was still counting all the bees in the hive, he would have noticed an alarming drop in their numbers these past few years. The cause of this is still a mystery but it has been given the name Colony Collapse Disorder.*



Since 2006, alarming losses have been noticed in honeybee colonies throughout the United States. Within weeks, the bees just disappear and leave behind empty hives, there are no dead bees in the hives or on the ground surrounding the hives, they have just vanished. Insect pests, which prey upon sick, dying or empty hives, avoid them.

There are numerous ideas as to what is causing this, but no certainty to what it is; it may also be a combination of things. Diseases and pests such as Foulbrood, Nosema and mites have been suggested. Pesticides and genetically engineered crops could be to blame. Lack of genetic diversity might be a problem, most bees are genetically identical; one new pathogen could wipe out most of them. Bees are transported from farm to farm to pollinate individual crops, could there not be enough diversity or balance in their diets? Winter diets are often supplemented with High Fructose Corn Syrup, could this be adding to the bee's poor health? Could it be one of these? or two of these together?, or maybe three or more of these are stressing the bees to the point of collapse. Worse yet, could this be a new pathogen that is yet to be identified?

As of today, there is still no exact explanation; the best guess is that there is some new possibly viral disease that preys upon colonies, which are already weakened. Scientists are still working very hard to solve this mystery since the loss of a significant number of honeybee colonies in the United States would be a disaster to the agricultural community; some crops would totally disappear from commerce without the honeybee. While there are many other bees in the wild that pollinate crops, the honeybee is the only one that can be moved across the country from crop to crop when needed.

There is some good news though; there was a significant drop in the reported cases of Colony Collapse Disorder in 2007, New Jersey colonies were quite fortunate. Hopefully this recovery buys some time for entomologists to find out what the exact cause of this disorder is, and to find a solution to the problem before it is too late.

## Mission Statement

The Washington Township Land Trust was organized to protect and preserve the ecological, cultural, and historical integrity of the areas that contribute to and enhance the rural character of Washington Township and its environs. The Trust also promotes public interest in conserving land for open space uses in harmony with the natural environment and acquires interests in land by purchase or donation. It also manages land and property easements for the benefit of the public and educates the public to be stewards of the land.

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Color versions of this and past newsletters are available at [www.wtlt.org](http://www.wtlt.org)

Bees are dependent on pollen as a protein source and on flower nectar or oils as an energy source. Adult females collect pollen primarily to feed their larvae. The pollen they inevitably lose in going from flower to flower is important to plants because some pollen lands on the pistils (reproductive structures) of other flowers of the same species, resulting in cross-pollination. Bees are, in fact, the most important pollinating insects, and their interdependence with plants makes them an excellent example of the type of symbiosis known as mutualism, an association between unlike organisms that is beneficial to both parties.

There are about 20,000 species of bees worldwide. Some species may not yet have been discovered, and many are either not named or have not been well studied. Bees are found throughout the world except at the highest altitudes, in polar regions, and on some small oceanic islands. The greatest diversity of bee species is found in warm, arid or semiarid areas, especially in the American Southwest and Mexico.

# The Vanishing (part 1)

by Sharon Levy

Courtesy of OnEarth magazine, the independent journal of the Natural Resources Defense Council

*Bees crawl all over my body. I sit in the mud of a road embankment, watching the throngs that have landed on my legs. At the peak of one knee, three worker bees stand in urgent conference, sniffing: They stroke one another rapidly with their antennae, which house their organs of smell.*

All around them, their sisters tumble. Pairs of bees seize each other around their minuscule midsections and wrestle. Others go about their private business in the midst of the crowd, using their forelegs to groom their furry faces and long tongues.

I watch, calm and safe inside my borrowed beekeeper's gear: white coverall, veiled pith helmet, protective gauntlets. Just down the road, Jeff Anderson and his three assistants methodically pry the lid off each of hundreds of hive boxes to check the health of the colonies inside. As the day wears on and the March sunshine warms this little-used ranch road in California's Sierra foothills, more and more bees take flight.

Wild buckthorn bushes lining the road carry clusters of tiny white flowers, their anthers bright with pollen. Bees work the blossoms, packing the yellow grains into smooth depressions on their hind legs, specially designed to carry this fuel (pollen is a high-protein food) back to the hive. On their travels, they transfer pollen from plant to plant, flower to flower, fertilizing the blossoms and allowing them to set fruit. This ancient partnership of pollinator and plant is essential to life as we know it. One-third of the food we eat comes from crops that need animal pollinators, a role often filled by bees but sometimes by butterflies, [moths], beetles, birds, or bats. Bee-pollinated foods include squash, tomatoes, peppers, apples, and pears. Unfortunately, the honeybees surrounding me are members of a threatened tribe, whose loss would have a dire effect on farmers, not to mention everyone who eats fruits and vegetables.

Bees became the focus of Jeff Anderson's life 30 years ago when he married his wife, Christine, a beekeeper's daughter. He joined his father-in-law, Joe Tweedy, in the family business. Ever since, he's been shuttling a carefully tended stock of honeybees cross-country, following the bloom of crops from California's early spring fruit orchards to Minnesota's summer fields of clover. Anderson's grown son Jeremy, working beside him, represents the fourth generation of beekeepers in the family. Without the services of managed honeybees, provided by migratory beekeepers like the Andersons, billions of dollars' worth of crops across the United States would fail.

I join Anderson as he opens another hive. Inside, eight wooden frames hold honeycomb whose surface is crowded with bees, all in constant motion though there seems to be no room to move. Speaking with an upper-midwestern lilt—Anderson grew up on a Minnesota dairy farm—he points out the queen, about 30 percent larger than the thousands of her worker-bee daughters who feed, build, and clean the hive. One or two black drones, males whose only function in life is to mate with a queen, stroll among the busy workers.

As he moves through the bee yard, Anderson can tell at a glance how each colony is doing. If all is well, the frames of honeycomb will be thick with bees giving

forth a contented hum. But sometimes half the frames are bare and the bees just don't sound right. Sometimes the ground beneath a hive box is covered with bee carcasses.

Since Anderson began, in 1976, raising healthy bees has become more and more difficult. In the 1980s, two non-native species of parasitic mite infested North American honeybees. One of the species, *Varroa destructor*, has proved especially deadly. Meanwhile, safe pastures where bees can forage without being poisoned by pesticides are becoming increasingly rare.

The domesticated European honeybee was introduced to North America 400 years ago by colonists at Jamestown and Williamsburg to provide their settlements with honey; few bees native to the continent produced enough honey to make harvesting viable. Since then, the honeybee has spread into every farmable corner of North America. The cultivation of honey is an age-old pursuit: To maximize its production, beekeepers in Egypt during the time of the pharaohs floated their hives down the Nile to areas of abundant bloom, with some success. Early American beekeepers also transported their colonies—on buckboard wagons, Mississippi River steamboats, and trains—also with mixed results; the hives could not always be moved at the right times, the wax in the honeycombs often melted, the worker bees were sometimes left behind while their homes drifted downriver. In the 1940s, when new interstate highways and reliable long-haul trucks made it practical, beekeepers began regularly migrating long distances with their hives, following the flow of nectar as crops bloomed with the changing seasons.

In the boom years following World War II, large swaths of natural habitat across the United States were devoured by suburban development and agriculture. Patches of wild woodland, shrubs, and flowers that had supported native bees dwindled. The common practices of modern agriculture—the widespread use of pesticides and the tendency to wipe out every wild flowering plant in sight—began to destroy the pollinators that make farming possible. Beekeepers, accustomed to paying farmers for the privilege of stationing their beehives on land with blooming crops, started to receive payment from farmers for their pollination services. Today, migratory beekeepers follow this trail of money back and forth across the country as pollination fees continue to rise.

The United States and Canada are home to at least 4,500 species of native bee, from the sleek, iridescent blue mason to the plump, lemon-yellow bumblebee. All are at risk. "Where we live in Minnesota," says Anderson, "the local farmers will let their second cutting of alfalfa or red clover bloom, to feed the bees. A number of those people will tell you that the native bees just aren't there anymore."

To read more on the series go to: [http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/aa/vanishing\\_part1.shtml](http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/aa/vanishing_part1.shtml)

## Sweat Bee



Sweat Bee, common name for any of a large family of bees, many of which are attracted to the salts in human perspiration. Most sweat bees are small to medium-sized, 3 to 10 mm (0.12 to 0.40 in) long. They are generally black or metallic colored, and some are brilliant green or brassy yellow. Sweat bees are among the most common bees wherever bees are found,

except in Australia, where they are relatively uncommon. There are about 1000 species in the United States, Canada, and Central America.

Sweat bees are particularly numerous in North America. Although their small size makes them relatively inconspicuous, hundreds may swarm over flowers in gardens or meadows. The different species are often difficult to distinguish. Most sweat bees visit a variety of flowers. They sting only if handled.

The life cycles of sweat bees vary tremendously among species. Most species nest in the ground, but some nest in wood. Nests usually consist of a single main tunnel having one or more clumped cells arising from lateral branches. In some species, the bees constantly guard the nest entrances.

For more info: [http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/sweat\\_bee/](http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/sweat_bee/)  
Sweat Bee photo by L. West/Photo Researchers, Inc.

## Bumble Bee



Photo by Aron Tanti

Bumble Bee, common name for any of a group of large, hairy, usually black-and-yellow, social bees. They are found primarily in temperate regions of the northern hemisphere, often ranging farther north and higher in altitude than other bees. Fifty species of bumble bees are known in North America.

Bumble bees are similar to their close relatives, the honey bees, in that their colonies are headed by a queen, who is the main egg-layer, and many workers, who are the daughters of the queen, and in that drones (males) are produced during the mating season. However, the colonies of bumble bees, unlike those of honey bees, only survive during the warm season; new queens hibernate alone to begin another colony the following spring. In addition, there are usually fewer individuals in a bumble bee colony than in a honey bee colony. Although bumble bees collect nectar and store it as honey, they do not hoard large amounts of it, as do honey bees.

Bumble bees are important pollinators of many plants. Both queens and workers collect pollen and transport it back to the colony in pollen baskets on their hind legs. Workers are small if born early in the year, and large if born later in the year. Also, some species of bumble bees are larger than others. Differences in body size, and especially in tongue length, are important in determining which flower species a bumble bee will visit for nectar and may determine which flowers it can pollinate.

Bumble bees have long been recognized as vital to the production of certain seed crops. In recent years, bee scientists have developed a means to cause queens to skip their winter hibernation and produce colonies year-round. This has made certain species of bumble bees available for use in pollinating crops they did not before. Bumble-bee colonies are now used extensively in greenhouse pollination of crops such as tomatoes and strawberries.

Contributed by: Evan A. Sugden

For more info: [http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/bumble\\_bee/](http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/bumble_bee/)  
Bumble Bee photo by

## Honey Bee



Honey Bee, common name for any of several species of highly social bees known for their honey-hoarding behavior and their use as a domesticated species. The European honey bee is important in modern agriculture and in nature, providing pollination for many valuable crops and wild plants. It is native to Asia and the Middle East and was introduced to North America by

early European colonists. By the mid-1800s honey bees had become widespread. Today, they are naturalized on every continent except Antarctica. Honey bees can be easily reared, are adaptable to many climates and to laboratory conditions, and have a complex social life. They are among the most studied and best known insects.

In addition to the familiar European honey bee, there are six other recognized species of honey bees, including the Indian, Koschevnikov's, Dwarf, Andreniform Dwarf, Giant and Mountain Giant honey bee. The European, Indian, and to some extent Dwarf honey bees are species that have been domesticated, although the European honey bee is by far the most widespread domesticated bee and the only species kept in North America. There are many races of the European honey bee. The ones most popular in modern beekeeping are the Italian, Carniolan, and Caucasian. Most honey bees used in hives today are mixtures of these and sometimes other races. Africanized honey bees, also known as killer bees, are a hybrid of African and European races naturalized in the western hemisphere.

For more info: [http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/honey\\_bee/](http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/honey_bee/)  
Honey Bee photo by Larry Crowhurst/Oxford Scientific Films

## Leafcutting Bee



Leafcutting Bee, common name for bees that use pieces of leaves or flower petals to construct their nests. Leafcutting bees are found throughout the world. About 140 species occur in the United States and Canada. The term leafcutting bee also refers to a large number of related species, not all of which build their nests with leaf pieces. In the entire group, there are

over 3000 species worldwide and more than 600 species in the United States and Canada.

Leafcutting bees are black bees with white or silvery hairs, and the top of the abdomen may have fine bands of white hairs. The underside of the female's abdomen has a dense brush of hairs that is used for carrying pollen. Males are usually smaller and in many species they have hairier faces than females. The bees range in size from small to moderately large, usually 1 to 2 cm (0.4 to 0.8 in) long.

A few species of leafcutting bees are communal—that is, several females share a common nest entrance but construct nest cells and tend their own brood separately. Most species are solitary and each female constructs her own nest independently. Most nest in preexisting cavities, such as hollow plant stems, hollow trees, old mason wasp nests, bird nests, snail shells, insect galls, and holes in wood created by boring insects or by nails. One group of leafcutters is known to excavate their own nests in sandy soils.

The alfalfa leafcutting bee was introduced into the United States from western Asia in the late 1930s for the commercial pollination of alfalfa plants. This bee is specially adapted for foraging on alfalfa flowers, which honey bees tend to avoid. These small flowers must be pried open by the pollinating insect, which then gets dusted with pollen by the flower's spring-loaded anthers. The alfalfa leafcutting bee is managed intensively for alfalfa pollination in Washington, Oregon, California, Idaho, and Montana.

For more information  
[http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/leafcutting\\_bee/](http://www.everythingabout.net/articles/biology/animals/arthropods/insects/bees/leafcutting_bee/)  
Leafcutting Bee photo by: Marshall Black/Animals Animals or Earth Scenes

Sweat Bee, Bumble Bee, Honey Bee and Leafcutting Bee, Microsoft® Encarta® Encyclopedia. <http://encarta.msn.com>

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Beekeepers Eric Olsen of Yakima, left, and Tom Hamilton, Namapa, Idaho, look over graduate student Mathew Smart's shoulder at an entomology laboratory at Washington State University. The beekeepers have donated seed money to underwrite research on Colony Collapse Disorder.

## Bee Industry Dedicate Funds to Study Colony Collapse Causes

PULLMAN, Wash. – Washington State University scientists and Pacific Northwest beekeepers are joining forces to find out what is causing the mysterious Colony Collapse Disorder that has wiped out thousands of hives throughout the region over the past several years.

Two large beekeepers in the Pacific Northwest – Eric Olson of Yakima and Tom Hamilton of Nampa, Idaho – have made donations as seed money for the research. Noyes Apiaries in New Plymouth, Idaho, the Idaho Honey Association and the Washington State Beekeepers Registration Fund also have made contributions. With those donations and dedicated funds from the WSU Agricultural Research Center, researchers will spend nearly \$200,000 over the next two years to look at causes and possible treatments for the disease.

*"Hive health is critically important to the bee industry in Washington, and bees are essential to pollinate many of our important crops,"* said Ralph Cavalieri, associate dean in the WSU College of Agricultural, Human, and Natural Resource Sciences and director of the Agricultural Research Center. *"The financial partnership with the beekeepers will bolster our scientists' work on this urgently important issue. This is a great start."*

The Washington State Beekeepers Association estimates overall statewide losses to the disease at between 35 and 50 percent in recent years. With eight of 10 of Washington's most valuable crops – including apples – being "bee dependent," Colony Collapse Disorder left unchecked could jeopardize the state's agricultural economy.

To read more <http://cahnrnews.wsu.edu/reportertools/news/2008/bee-research-2008-04.html>

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## The 3rd Annual Wine Tasting Event

was held at Schooley's Mountain Lodge on Saturday, April 12, 2008 in Long Valley, New Jersey



Our third wine tasting was another winner and well received by all accounts. The fund raising team again lead by Chris Steffan, are becoming true veterans in putting together a relaxing evening of fine wine and food. Steve Sturges owner of Peapack Fine Wines, selected the numerous and varied wines at the event. Here are a few of the photos taken during the tasting. More are located on our web site, <http://www.wtlt.org/events>



The Land Trust thanks the following individuals and businesses for years of support in helping with our fund raising activities:

Dale Blum,  
*Academy Engraving and Awards*

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A special thank you to our supporting sponsors who made this event possible.

Photos courtesy of Chris Steffan



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