

Green Scene: When honeybees are in trouble – so are we

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We are now into the summer season when many locally-grown fresh foods become available at farmers markets and in stores. I much appreciate the farmers who produce such nutritious and delicious food. However, these farmers have a very important partner in their efforts – the under-appreciated honeybee. Honeybees perform the incredibly useful service of pollination which is essential for a substantial portion of the food we eat. Other animals can also pollinate flowers; these include bats in the tropics, hummingbirds, and a variety of insects including moths, beetles, flies, bumblebees and several species of solitary bees including mason bees. However, it is the domesticated honeybee that is the true workhorse amongst all these important pollinators.

Honeybees and other wild pollinators provide critical pollination services for an estimated one third of the food we eat.
H. Maguire photo.



It is estimated honeybees are now responsible for the production of over forty-four billion dollars' worth of food and other products in North America every year.

Because honeybees overwinter in their hives with only a slightly reduced population they long ago evolved the technique of building up stores of honey and pollen to carry them through the colder months when flowers were not in bloom. People soon learned to exploit this rich source of sweet food as well as the useful beeswax and other products. Thousands of years ago, people in ancient Egypt and India learned to cultivate honeybees. Their techniques eventually spread around the Mediterranean and into Europe. During the medieval period, beeswax was much in demand for candle-making so monks in monasteries typically maintained hives of domesticated honeybees. The first European settlers brought honeybees to the Americas. Some of these honeybees escaped from the domesticated hives and became established as feral populations across the continent. The art of domestic beekeeping made a great leap forward in the 1850s when a

Pennsylvanian minister named Langstroth developed his novel hive system of removable rectangular boxes that is still in use today by beekeepers around the world.

Because honeybees are critical pollinators for approximately one third of the food we eat, beekeeping has now become big business. Farmers who grow nuts, soya beans, carrots, onions, broccoli, sunflowers, avocados, peaches, melons, strawberries or blueberries, to mention a few, all require fields full of honeybees for efficient crop production. In the USA, hives are trucked in semi-trailers across the continent on a regular basis. For example, in February, essentially all the commercial hives in the western states can be found in the almond groves of California. In Canada, beehives from Alberta are shipped to BC during the blueberry pollination season.

Alarmingly, honeybees now appear to be suffering massive population declines, not only in North America but all across the world. This decline has been so precipitous and so poorly understood that, in March 2011, the United Nations issued a warning that our ability to produce an adequate food supply for the human race could be at risk if the decline in pollinator populations is not stopped. While impacts on domestic honeybees are often the easiest to detect, other wild pollinators are also disappearing from the landscape. Some of the reasons for these declines are easy to understand while, for others, the causes remain elusive.

Certainly, the application of pesticides to crops can have a huge impact on honeybee populations. One of the worst examples is the province of Sichuan, China where pear orchards are abundant. Years of organophosphate pesticide use (which contains carcinogens) has killed all the bees. Residues of these chemicals remain so high that bees cannot be safely re-introduced to these orchards. Consequently, these pear trees must now be pollinated in a labour-intensive manner by human hands often by migrant women and children who are obviously working under hazardous conditions. In addition, some of the newer pesticides, mainly the neonicotinoids are also thought to pose grave risks for many insect pollinators.

Pesticide use is hardly the only concern. A number of strange new diseases have been having devastating impacts on bee colonies in recent years. These include the *Varroa* mite, an acute paralysis virus, a strange malady called Colony Collapse Disorder and a *Nosema* fungus. These diseases could be transmitted to wild pollinators when they visit the same blossoms as sick honeybees. A 2011 United Nations report recommended a greater emphasis on maintaining natural habitat as areas of refuge for pollinators and more focus on the disease-spreading hazards associated with transporting bees all over the world. This report also expressed the hope that the Rio+20 Conference (which was held last week) would bring more attention to this urgent problem. Sadly, this conference has now been characterized as “a wash-out” and “epic failure”. Maybe our elected officials will have to get hungry before they can be convinced of the need to take action on this very serious problem.