

# As honeybee colonies collapse, can native bees handle pollination?

April 13 2010, by David Tenenbaum

---



The bumblebee, shown here visiting a flowering native milkweed plant, is one of about 400 native pollinators, mainly solitary bees, which are active in Wisconsin. Entomologists at UW-Madison say preserving habitat in prairies and savannas can sustain native bee populations and help pollination, even if colony collapse disorder continues to damage honeybee hives. Photo: courtesy Hannah Gaines

(PhysOrg.com) -- With colony collapse disorder continuing to plague commercial beekeepers in many parts of the country, University of Wisconsin-Madison experts are studying whether native pollinators can supply the insect pollination needed to form many fruits.

While [honeybees](#) are social insects that live in large colonies, or hives, most native pollinators are solitary bees that nest in the ground or inside vegetation. Although the natives cannot be trucked into fields like

honeybees, they do not suffer colony collapse. Studies elsewhere show that native pollinators can play a major role in sustaining such pollination-dependent crops as watermelon and cranberry.

Entomologists say that although the collapse seems less dire in Wisconsin, honeybees are still declining.

"If you look at some of the comments about colony collapse, you'd think the end of world was coming, and that this was a new problem," says Phillip Pellitteri, a distinguished faculty associate in the insect diagnostic lab, "but honeybees have been on a decline for three decades for a litany of reasons."

As the bee business has consolidated, and started to emphasize pollination rather than honey production, new [insect pests](#) and diseases have made beekeeping more work than it used to be, and pushed some marginal producers out of business, Pellitteri says.

Still, Pellitteri says most of the collapse seems associated with migratory beekeeping.

"I've heard reports of up to 90 percent losses in the almond groves in California," where semi-trailer loads of hives are trucked in from around the country just before the trees flower, he says. The stress of long journeys may be impairing the bees' immune system, making them vulnerable to exotic viruses.

In Wisconsin, where migratory beekeeping is less common, crops like cucumber, cranberry and apples require bees, as do many popular prairie and garden plants.

Colony collapse is less clear-cut in Wisconsin, Pellitteri says. When a hive dies out, "There is no diagnostic test to confirm whether it is

collapse or something else. There's always a question, is it one of the mites or another familiar problem?"

The threat or reality of colony collapse has certainly focused attention on native pollinators. About 4,000 species of bees, most of them solitary, are known to pollinate plants in the United States, Pellitteri says.

"Under the right circumstances, natives pollinators can do a lot of benefit, but you can't manipulate them like honeybees. You can't throw them on a truck and move them across country to get pollination services," he says.

Pellitteri says native pollinators are a "much bigger pool than most people think, with about 400 species in Wisconsin," including bumblebees and the more obscure squash bees and leaf cutter bees.

Hannah Gaines, a Ph.D. student in the entomology department at UW-Madison, is studying native pollinators in Wisconsin's cranberry crop, the nation's largest. Although cranberry growers routinely rent honeybees to do the pollinating, relying on native pollinators could cut costs.

Studies of pollination in New Jersey showed that native bees are actually more efficient than honeybees at pollinating cranberries. Gaines says other studies have found that native pollinators can handle watermelon pollination in California, in fields where sufficient natural habitat exists within 1 kilometer.

Gaines is studying how the nature of the surrounding landscape affects pollination in the Wisconsin cranberry bogs, located between Tomah and Wisconsin Rapids. During 2008, she collected 108 species of native bees, and found that both abundance and diversity increased along with the amount of nearby natural habitat.

"Cranberry growers in Wisconsin are very open to the idea of using native pollination," she says, "but none of the big growers are ready to get rid of honeybees yet, and use natives exclusively."

Native pollinators should get a boost from the federal Environmental Quality Incentives Program, which supports landscape conservation, says Gaines. "We're hoping to find growers to participate, to put in strips and plots of native perennial, flowering plants, as habitat for bee nests, and to provide floral resources when the crops are not in bloom."

"Native bee conservation is habitat conservation," she says.

"You can't have [native pollinators](#) with a bunch of parking lots," adds Pellitteri. "You have to promote patches of native ground, flowers, prairie or oak savanna, so the [bees](#) have a food source and habitat to nest in the ground."

Provided by University of Wisconsin-Madison

Citation: As honeybee colonies collapse, can native bees handle pollination? (2010, April 13) retrieved 25 July 2024 from <https://phys.org/news/2010-04-honeybee-colonies-collapse-native-bees.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--