



Pollinators in Peril

Diverse farms can help key beneficial insects

The importance of pollinators

Pollinators—wild creatures and domesticated honeybees—help 70 percent of the world’s wild and cultivated flowering plants reproduce. Every third bite of food is directly or indirectly the result of an insect carrying a few grains of pollen from one flower to another. Honeybees alone pollinate approximately \$15 billion worth of American crops each year, according to the USDA.

Bees purposefully collect pollen to feed on its rich protein, but a variety of creatures participate in pollination, often accidentally, when they travel between plants. Butterflies, moths, wasps, flies, ants, bats, hummingbirds, and yes, mosquitoes, play a role in plant pollination.

Without pollinators we would have to say goodbye (or at least do with less) tomatoes, squash, melons, cranberries, almonds, blueberries, cherries, asparagus, broccoli, carrots cucumbers, onions, and various tree fruits like apples, to name a few. And because pollinating insects are needed to produce seeds for forage crops like alfalfa, our meat and milk is partially reliant on their services.

That’s why farmers, environmentalists and even consumers should be concerned by this troubling fact: pollinators—everything from the domesticated European honeybee to the wild bumblebee—are quickly declining.

We can all help

But this agro-environmental crisis offers a sweet opportunity for farms that are home to diverse habitats full of flowering plants and other natural areas. Such diverse farms could serve as pollinator havens while remaining productive. Because pollinators are such critical species, doing things that benefit them could provide multiple ecological services on the side: from improved water quality and carbon sequestration as a result of more perennial plant cover, to habitat for birds and mammals. And the perils facing pollinators provides an opportunity for the average consumer to take part in the solution as well.

What’s bugging the bugs?

Over the past half-century, honeybee numbers in the U.S. have dropped almost 60 percent. Disease has played a role, but market forces have also been a major factor—beekeep-

ers left the business in droves as cheap honey from China flooded the market. Now that Colony Collapse Disorder (CCD) has arrived on the scene, it may represent a deathblow to a U.S. industry already on the ropes.

The collapse of honeybee colonies may be the result of expecting too much from these apian workhorses. Since the 1950s in the U.S. alone, the number of crops we need pollinated by bees has doubled, while the number of honeybees

has dropped by at least 50 percent. It’s like a factory where half the workers have been laid off while the assembly line has been sped up.

In February and March each year, half of the nation’s 2.5 million hives are in California providing pollination services for almond groves. Midwestern hives are moved South and West in the winter, and back again in the spring. All of that traveling and concentration of hives in a feedlot-like environment exposes the bees to an alphabet soup of

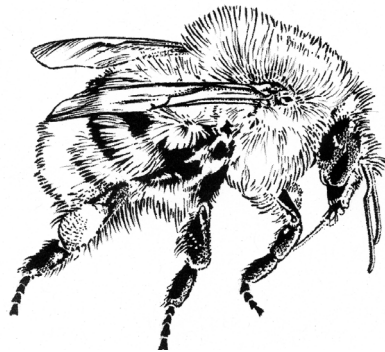
diseases they aren’t used to dealing with.

There are also concerns that honeybees are being hurt by pesticides, which have dogged wild and domestic pollinators since they became ubiquitous after World War II. Bees and other pollinators are notoriously sensitive to pesticide poisoning.

Bringing in wild help

One way to reduce stress on honeybees—whether it’s from disease, overwork, pesticide poisoning or a combination of all three—is to tap into help from the wild. Wild insects already provide roughly 15 percent of food crop pollinator services. In the Upper Midwest, the potential for native species to transport pollen is huge—Minnesota, Wisconsin and Michigan alone have more than 500 species of native bees. In many ways, native bees are superior pollinators to domesticated honeybees.

But native pollinators have their own problems. The National Academy of Sciences reported in 2007 that long-term population trends for North American wild pollinators are “demonstrably downward.” At least four dozen species of wild bees in this country are on the Xerces Society’s “red list” of at-risk pollinators.



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Habitat problems

The issue that overshadows every other threat to wild and domesticated pollinators is lack of natural habitat to forage on and live in. Diverse landscapes can go a long ways toward making beneficial insects more resilient in the face of disease, toxic chemicals and general stress, say entomologists and ecologists. And this is where diverse, sustainable farms can play a role.

Because wild bees are integral to a healthy ecosystem, any conservation initiatives that help them could have a positive effect on other parts of the environment.

Research shows that farms with woods, meadows and other natural areas growing flowering plants have a larger number of insect pollinators. But monocultures of corn, for example, are deserts to pollinators. In addition, heavy tillage disrupts wild bee habitat—two-thirds of native bees nest underground.

Improving habitat

Current Natural Resources Conservation Service (NRCS) guidelines in many states recommend at least one to two acres of pollinator habitat for every 25 acres of pollination-dependent cropland. And it needs to be relatively close: bumblebees will range up to a mile from their nest to forage, while for tiny solitary bees (some species are small enough to ride on a bumblebee's antenna), a flight of 200 yards would be a major journey.

Botanists and entomologists say careful planning is needed when planting for pollinators. The peak of pollination may be August, but insects need nectar throughout the growing season, particularly during the fall as they prepare for winter. That means diverse plantings that bloom throughout the spring, summer and fall are key.

Flowering trees such as willows can be critical to bees when they emerge in the spring, while asters, goldenrod and sunflowers are key sources of food in late summer and fall. Even allowing vegetables like broccoli to bolt late in the season can help.

Beneficial habitat can be had in some surprising places. Research out of Kansas has shown that “linear habitat corridors”—native prairie plantings along roads—can produce major benefits for pollinating insects. But it doesn't necessarily take thousands of acres of wild habitat to help pollinators—sometimes just a little splash of diversity will help.

Pollen & the plate

The beauty of pollinator conservation is because these creatures are such a key link in the food chain, anyone that eats can play a positive role by creating a “demand” for diverse habitat.

Buying honey from local beekeepers provides a direct, market-based mechanism for supporting healthy habitat for local pollinators—both wild insects and domesticated honeybees. This could also be a way for consumers to do things on a bigger, landscape scale and support the overall natural infrastructure

required for a type of honey production that preserves wild habitat. If eaters are more aware that top-quality honey requires diverse habitat, they may be more likely to do everything from establish native plantings on their own property to encourage local governments to reduce chemical-intensive landscaping. They may also see the importance of supporting government policies that encourage, rather than discourage, farmers who diversify out of corn and soybean monocultures.¹

How you can help pollinators

→ The Xerces Society has several good resources for making farms and homes more pollinator friendly: 503-232-6639; www.xerces.org.

→ You can learn which pollinator-friendly plants are best for your ecoregion at www.pollinator.org.

→ *Managing Alternative Pollinators: A Handbook for Beekeepers, Growers and Conservationists* is a step-by-step, full-color guide for rearing and managing bumblebees, mason bees, leafcutter bees, and other alternatives to honeybee pollinators. More information is available at www.nraes.org/nra_map.html, or by calling 607-255-7654.

→ For more information on NRCS initiatives that help farmers establish and sustain pollinator habitat in conjunction with programs such as the Conservation Stewardship Program and the Conservation Reserve Program, contact your local NRCS office, or visit www.nrcs.usda.gov.

→ To hear Land Stewardship Project *Ear to the Ground* podcasts featuring beekeeper Brian Fredericksen (episode 54) and entomologist John Luhman (episode 60) talking about domestic and wild pollinators, and ways of helping them, see www.landstewardshipproject.org/podcast.html?t=11.

→ For information on sources of local honey, see the Land Stewardship Project's *Stewardship Farm Directory*. It's available at www.landstewardshipproject.org/pdf/sfd.pdf or by calling 612-722-6377.

Source

¹“Pollinators in peril: Farms with natural habitat could help ensure bees keep buzzing & plants keep propagating,” by Brian DeVore, *Land Stewardship Letter*, Summer 2009, Vol. 27, No. 2, pages 22-25; www.landstewardshipproject.org/lsl/lspv27n2.pdf

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This fact sheet is brought to you by the members and staff of the Land Stewardship Project, a nonprofit organization devoted to fostering an ethic of stewardship for farmland and to seeing more successful farmers on the land raising crops and livestock. For more information, call 612-722-6377 or visit www.landstewardshipproject.org.