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Loss of species that pollinate is cause for global alarm, researchers say

Juliet Eilperin, Washington Post

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Birds, bees, bats and other species that pollinate North American plant life are losing population, according to a study released Wednesday by the National Research Council. This "demonstrably downward" trend could damage dozens of commercially important crops, scientists warned, because three-fourths of all flowering plants depend on pollinators for fertilization.

American honeybees, which pollinate more than 90 domestic commercial crops, have declined by 30 percent in the past 20 years. This poses a challenge to agricultural interests such as California almond farmers, who need about 1.4 million colonies of honeybees to pollinate 550,000 acres of their trees. By 2012, the state's almond farmers are expected to need bees to pollinate 800,000 acres.

Gene Robinson, an entomologist at University of Illinois, Urbana-Champaign and one of the 15 researchers who produced the report, said U.S. farmers had to import honeybees last year for the first time since 1922, underscoring the extent of the problem.

"The honeybee industry is at a critical juncture," Robinson said. "The time for action is now."

A number of factors have cut pollinators' numbers in recent decades, the researchers said. Pesticides and introduced parasites such as the varroa mite have hurt the honeybee population. Bats, which carry pollen to a variety of crops, have declined as vandalism and development destroyed some of their key cave roosts.

John Karges, a Nature Conservancy conservation biologist who works with the federally endangered Mexican long-nosed bat in west Texas, said the bat's U.S. population fell from 10,000 in 1967 to 1,000 in 1983. The species feeds on nectar from the agave plant, which can be used to produce a sweetener as well as tequila.

"This bat is rare and suspected of declining rangewide," said Karges, noting that it can now be spotted only at one protected cave site in Big Bend National Park. "I don't think anyone's looking at it annually or closely."

The declines have been gradual and in some instances are hard to quantify, the committee concluded. But the panel's chairwoman, entomologist May Berenbaum of the University of Illinois, Urbana-Champaign, said in a statement that there is already cause for alarm.

"Despite its apparent lack of marquee appeal, a decline in pollinator populations is one form of global change that actually has credible potential to alter the shape and structure of terrestrial ecosystems," Berenbaum said.

Animals carry pollen, which they pick up inadvertently while feeding on a plant's nectar, and transfer it from one flowering plant to another, sometimes over significant distances. The process not only boosts plant production but increases species' genetic diversity.

Animal pollinators fertilize more than 187,500 flowering plants worldwide. Scientists believe these plants, called angiosperms, gained ecological dominance more than 70 million years ago in part because animals help them disperse their pollen so broadly. Other pollinators include hummingbirds and butterflies, as well as wild bees.

In many ways pollination works as a chain, said committee member Peter Kevan, a professor at the University of Guelph in Ontario, in which even the largest animals depend on small insects.

"Canadian black bears need blueberries, and the blueberries need bees" for pollination, Kevan said. "Without the bees you don't have blueberries, and without the blueberries you don't have black bears."

Despite this crucial link, Robinson said, many ordinary citizens fail to grasp how important pollinators are to food production.

European researchers also have documented serious declines: The diversity of bee species has declined by 40 percent in the United Kingdom and 60 percent in Holland since 1980. Europeans have more detailed records of pollinators than Americans, said University of Arizona entomologist Stephen Buchmann, partly because they have more amateur taxonomists keeping track of them.