



## Environmental Stewardship

PHOTO: USDA

# Protecting Pollinators

*Almost 80% of the plants grown around the world to provide our food and plant-based industrial products require pollination by animals. In the United States, pollination of agricultural crops is valued at \$10 billion annually. Researchers at land-grant universities are gathering information and developing methods to help protect essential pollinators from habitat loss, excessive and improper pesticide use, and a changing climate.*

### Successful examples include:

- Habitat loss is a threat to monarch butterfly populations. **Iowa** research shows that establishing monarch habitats close to crop fields will likely boost monarch populations, despite insecticide exposures. These findings suggest that, in general, the benefits of establishing additional habitat near crop fields in summer breeding grounds in the north central United States outweigh the risks, especially if integrated pest management practices are used that tailor insecticide applications.
- More than 83,370 community scientists in **Georgia**, including middle and high school students and young farmers, are helping sustain the monarch butterfly population through the Pollinators in Peril Project. The project has aggregated 312,081 observations of 93 species of monarchs and native milkweed. Program partners also produced and distributed native milkweed plants and developed and shared lesson plans and instructional materials. Train-the-trainer workshops equipped teachers with the resources necessary to develop local monarch butterfly habitats, and more than 60 schools in Georgia received native milkweed seeds for planting.
- **Ohio** scientists conducted research in 40 vacant lots in Cleveland, investigating how greenspace quality, size and configuration affected bee and predatory wasp nesting. The analysis showed a higher abundance of native bee larvae associated with plots in flowering prairie and in plots surrounded by at least 15 connected acres of additional urban greenspace.
- A **Georgia** program to increase honeybee populations has grown to over 1,000 participants representing 21 states and two countries. Due to popular demand, the Georgia Master Beekeeping program has

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expanded its training and testing sites to two deputized and vetted local beekeeping clubs. The program has also been extended to inmates in Georgia prisons.

- As part of a multistate project, researchers are getting a better understanding of the chemical interactions that affect pollinators. For example, scientists at Cornell University in **New York** determined whether common co-occurring exposures to pesticides result in synergistic toxicity in bees. In **California**, researchers identified floral chemistry traits and microbial communities that affect the patterns or preferences of hummingbirds, honeybees, and carpenter bees. Researchers in **Massachusetts** discovered that exposure to pollen from sunflowers and a wide range of sunflower relatives helps reduce pathogen infection in bumblebees.