

# Pollinators



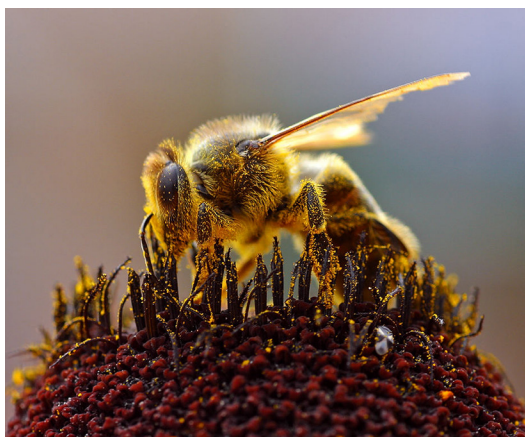
## What are pollinators and why should you care?

In Texas, pollinators are bats, bees, hummingbirds, butterflies, moths, wasps, flies, and beetles. Through the process of foraging, both native and nonnative pollinators provide pollinating services to (or at least use) roughly the entire suite of native flowering plants. Native flowering plants include forbs, legumes, shrubs, trees and, aquatic vascular plants. Three quarters of all the world's most common human food crops require insect pollination.

Perennial plants such as flowering shrubs, legumes, forbs, and wildflowers provide consistent foraging habitat during the spring, summer, and fall. Annual plants, such as certain commodity and produce crops also provide foraging opportunities. Pollen (usually moistened with nectar or floral oil) is used to feed larvae, and nectar is used to fuel the flight of adults. Many pollinators are active above ground as adults for only a few weeks or months. Pollinators require a reliable protein source (nectar and/or pollen) during their active period to carry the adult and offspring through the winter to the next blooming period.

Relatively undisturbed conditions with suitable ground and/or nest structure provide nesting sites. Nest sites are important because the farther the pollinator must travel, the more nutrients the pollinator uses. If the pollinator travels long distances to a "poor" food source, and if the pollinator is stressed, then the pollinator may be more susceptible to environmental factors such as parasites and disease resulting in possible starvation or reproductive decline. The average foraging distance for native pollinators ranges from approximately 50 feet to ½ mile. The optimal foraging distance for nonnative pollinators,

such as the European Honey Bee, is approximately one mile or less from the colony.



*Photo courtesy of PDPhoto.org*

## Where do you start?

Landowners can take three initial actions:

- Recognize the pollinators and pollinator habitats that are already on your property.
- Adapt existing production and land management practices to avoid causing undue harm to the pollinators already present.
- Reduce use of harmful pesticides.
- Provide habitat for native pollinators on and around the farm.

## What can you do?

Methods are available for providing or protecting nest site habitats for pollinator species in the agricultural landscape; many of them do not interfere with farming. They range from simple, low-cost measures to more complex and expensive methods:

Provide undisturbed habitat by focusing on areas that are not farmed, including:

- Unused land around fields, buildings, and service yards.
- Areas more difficult to farm, such as edges of ditches, ponds and riparian areas, on hills, or around utility poles.

## Additional Guidance

The NRCS has partnered with the Xerces Society's Pollinator Conservation Program to develop the best guidance available for supporting honey bees, as well as native bees and other pollinators. For more information on the technical support provided by Xerces, visit [www.xerces.org](http://www.xerces.org).

To locate state honey bee information, go to <https://txbeeinspection.tamu.edu/>.

## For More Information

To learn more, contact your local NRCS office which can be found at [www.farmers.gov/connect](http://www.farmers.gov/connect).

- Management of irrigation to preserve ground-nesting pollinators. By using drip or spray irrigation instead of flooding, producers can avoid drowning ground nesting pollinators and larvae. Irrigating can also be performed at night.
- Management of tillage to protect existing pollinator nests. By shallower tilling or using no-till agriculture, disturbance of nest sites can be avoided. For example, producers found three times more pollinators on squash and pumpkin farms that practice no-till agriculture than that of tilled farms.
- Active land management to provide nesting sites for pollinators, including:
  - Creating patches of bare ground within perennial plantings (a range of native plants blooming at different times during the spring, summer, and fall).
  - Leaving dead wood and standing snags, drilling holes in dead wood, and putting out trap nests for twig nesting pollinators.
  - Providing a sand-loam mix for ground nesting pollinators.
  - Putting out bumble bee nest boxes buried or above ground.
  - Reduce the use of non-selective herbicides such as glyphosate.
  - Improve current plant communities to encourage native species of plants.
  - Improve grazing management to encourage pollinator species during all seasons.
  - Increase use of prescribed burning to enhance a more diverse plant species community.

## How do pesticides affect pollinators?

Insecticides are differentially toxic to non-target species, depending on the active ingredients, the strength and composition of the formulation (dust, powder, liquid), and the behavioral and physiological response of the target insect. Some pollinator species might not be killed outright by pesticide applications, but they could suffer sub lethal effects, including reduced foraging ability that ultimately hamper their productivity. Short of eliminating insecticide use altogether, producers can reduce risks to pollinators from pesticides in several ways:

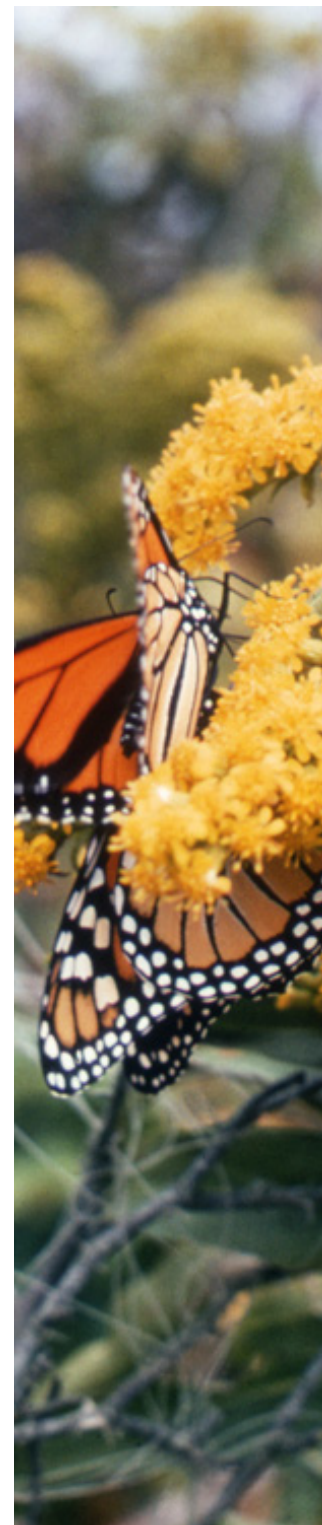
- Choose appropriate pesticides. Some insecticides have active ingredients that are less likely to cause mortality or sub lethal effects in pollinators, to have formulations that are less toxic to pollinators (for example

- granular powders are less noxious than dust), and tend to break down more rapidly than others. Microencapsulated formulations should be avoided because they mimic pollen.
- Apply pesticides selectively. Producers may be able to avoid using insecticides during a crop's bloom period, or apply them at night while pollinators are in nests, and apply them on the ground rather than in aerial spray.
- Convert some or all fields to organic production.
- Avoid death traps near pollinator habitat. Do not apply chemicals within 125-250 feet of habitat.

## Monarch Butterflies

The monarch butterfly is one of the most beautiful and recognizable insects on earth, but it needs our help. The monarch is losing its habitat, and more importantly, it is losing its milkweed plants that used to grow in that habitat, which monarchs depend upon for laying eggs and caterpillar food. As a result, its populations across the United States and into Canada and Mexico have been dropping by about 90% over the past 20 years.

Habitat restoration; milkweed and native flower seed production; outreach and education; and research and monitoring are key aspects of this effort. Texas has the most native milkweed species of any state with 37 species. You can help. Consider managing habitat and ecosystems to promote native plant communities on rangeland and forestland. In Texas flowering plants, forbs, shrubs and trees may be limited at critical times of migration, breeding, and foraging. Beneficial conservation practices such as restoring native grasslands, prescribed grazing and, prescribed burning may be used to provide habitat requirements for monarchs and other beneficial pollinators. We can restore the monarch and help all pollinators by providing milkweed and its needed flowering native grassland habitat to enable the butterfly to complete its life cycle and migration. By conserving and connecting habitat for monarchs, we will benefit other plants and animals, including critical insect and avian pollinators.



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