



Our Future Flies on the Wings of Pollinators



Fast Facts for Gardeners

What is pollination?

- Pollination occurs when pollen grains are moved between two flowers of the same species, or within a single flower, by wind or animals that are pollinators. Successful pollination, which may require visits by multiple pollinators to a single flower, results in healthy fruit and fertile seeds, allowing plants to reproduce. Without pollinators visits to tomatoes and many other fruit and vegetable plants on farms and orchards, we simply wouldn't have many crops!
- About 75% of all flowering plants rely on animal pollinators and over 200,000 species of animals act as pollinators. Of those, about 1,000 are hummingbirds, bats, and small mammals. The rest are insects such as beetles, bees, ants, wasps, butterflies, and moths.

Why are pollinators important to us?

- Worldwide, approximately 1,000 plants grown for food, beverages, fibers, spices, and medicines need to be pollinated by animals in order to produce the goods on which we depend.
- Foods and beverages produced with the help of pollinators include blueberries, chocolate, coffee, melons, peaches, pumpkins, vanilla, and almonds. Plants that depend on a single pollinator species, and likewise, pollinators that depend on a single type of plant for food (for example, fig wasps and fig trees or monarch butterflies and milkweed plants) are interdependent. If one disappears, so will the other.

What about bees that sting? What about allergies?

- Most species of bees don't sting. Although all female bees are physically capable of stinging, most bee species native to the U.S. are "solitary bees," that is, not living in colonies and don't sting unless they are physically threatened or injured. Only honey bees are defensive and may chase someone who disturbs their hive.
- It is wise, though, to avoid disturbing any bee or insect nest. For instance, if you spot an underground nest of ground-nesting bees, you might want to mark it with a stick so that it can be easily avoided.
- Some people are allergic to pollen of various flowering trees, plants and grasses, but not to all pollen. A common misunderstanding is that hay fever is caused by goldenrod pollen. It isn't! Goldenrods provide critical nourishment for butterflies, bees, other beneficial insects and birds, but don't affect people with hay fever. Ragweed is the main offender and should be avoided.

What everyone can do for pollinators:

- **Watch for pollinators.** Get connected with nature. Take a walk, experience the landscape and look for pollinators midday in sunny, planted areas.
- **Reduce your impact.** Reduce or eliminate your pesticide use, increase green spaces, and minimize urbanization. Pollution and climate change affect pollinators, too!
- **Plant for pollinators.** Create pollinator-friendly habitat with native flowering plants that supply pollinators with nectar, pollen, and homes. Support pollinator havens.



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What can you do for pollinators?

- **Create** a pollinator-friendly garden habitat in just a few simple steps.
 - **Design** your garden so that there is a continuous succession of plants flowering from spring through fall. Check for the species or cultivars best suited to your area and gradually replace lawn grass with flower beds.
 - **Plant** native to your region using plants that provide nectar for adults plus food for insect larvae, such as milkweed for monarchs. If you do use non-native plants, choose ones that don't spread easily, since these could become invasive.
- **Select** old-fashioned varieties of flowers whenever possible because breeding has caused some modern blooms to lose their fragrance and/or the nectar/pollen needed to attract and feed pollinators.
- **Install** 'houses' for bats and native bees. For example, use wood blocks with holes or small open patches of mud. As little as 12 inches across is sufficient for some bees.
- **Avoid** pesticides, even so-called "natural" ones such as *Bacillus thuringiensis* (Bt). If you must use them, use the most selective and least toxic ones and apply them at night when most pollinators aren't active.
- **Supply** water for all wildlife. A dripping faucet or a suspended milk carton with a pinhole in the bottom is sufficient for some insects. Other wildlife need a small container of water.
- **Provide** water for butterflies without letting it become a mosquito breeding area. Either refill containers daily or bury a shallow plant saucer to its rim in a sunny area, fill it with coarse pine bark or stones and fill it with overflowing with water. Butterflies can drink from the cracks between the filler but mosquito larvae have a hard time becoming established.
- **Share** fun facts, such as 1) a tiny fly no bigger than a pinhead is responsible for the world's supply of chocolate. Midges, tiny flies that live in damp, shady rainforests, are the only animals that can work their way through the complex cacao flower and pollinate it; and 2) one out of every three mouthfuls of food we eat and of the beverages we drink is delivered to us by pollinators; and 3) bees fly at about 7 mph and beat their wings 190 times per *second*.

Join the North American Pollinator Protection Campaign (NAPPC)

More than 100 organizations and individuals have formed a public-private conservation partnership to protect pollinators and form global connections in support of biodiversity and a sustainable environment. NAPPC (www.napcc.org) is coordinated by the CoEvolution Institute, a 501(c)(3) nonprofit organization that manages The Pollinator Partnership (www.pollinator.org). Join the list of NAPPC members and link up to support pollinator-friendly practices.