

## Gardening for Pollinators

### Why is Pollination Important?

**Pollination** takes place when pollen grains from the male part (anther) of a flower is transferred to the female part (stigma) of the same flower or another flower of the same species. The goal of every living organism, including plants, is to create offspring for the next generation. Plants can produce offspring by making seeds. A **seed** is an embryonic plant enclosed in a protective outer covering

Some plants such as are orchids, peas, and sunflowers are **self-pollinators**. Most of the self-pollinating plants have small, relatively inconspicuous flowers. The pollen from the anther is deposited on the stigma of the same flower, or another flower on the same plant. As a result self-pollinated plants can grow in areas where there are fewer pollinators such as the Arctic and mountainous regions.

Most important grain crop plants are **wind-pollinated**. These include wheat, rice, corn, rye, barley, and oats. Many economically important trees are also **wind-pollinated**. These include pines, spruces, firs and many hardwood trees, including several species cultivated for nut production.

Some plants are **pollinated by the water** in which they live. Water plants such as *Elodea* have small, hardly noticeable male flowers that release pollen grains into the water where it floats to the feathery stigmas of the plants' female flowers and fertilization takes place.

**Animal pollinators** transfer pollen from one flower to another, fertilizing the plant so it can produce seeds, fruit and new plants. Animal pollination helps at least **30 percent** of the world's crops and **90 percent** of our wild plants to thrive. The act of pollination then produces fruits, seeds, and young plants.

### Who are the animal pollinators?

**Bees** are the most efficient animal pollinators. There are 4,000 species of native bees in North America. They can be found wherever flowers bloom. Our common honeybee is actually native to Asia and the Middle East. This honeybee is called "European" because European colonists brought this species to North America.

Non-bee animals are also important pollinators. Non-bee pollinators include wasps, moths, butterflies, beetles, birds, flies, and small mammals, including bats.

All pollinators visit flowers in search of food, shelter, nest-building materials, and sometimes even mates. Some pollinators, including many bee species, intentionally collect pollen. Others, such as many butterflies, birds and bats move pollen accidentally. Pollen sticks on their bodies while they are feeding on nectar in the flower and then the pollen is transported from flower to flower resulting in pollination.

## Why Are Pollinators So Important?

- Pollinators are important to the reproductive success of over 75% of the world's flowering plants.
- They are crucial to the production of most fruits, nuts, and berries on which people and wildlife depend.
- Over 150 food crops in the United States depend on pollinators, including blueberries, apples, oranges, squash, tomatoes and almonds.
- One out of every three bites of food you eat exists because of the efforts of pollinators, including many fruits, vegetables, and seeds. Pollinators not only are necessary for our own food but support the food and habitat of animals.
- Healthy ecosystems depend on pollinators. At least 75 percent of all the flowering plants on Earth are pollinated by insects and other animals! This amounts to more than 1,200 food crops and 180,000 different types of plants—plants which help stabilize our soils, clean our air, supply oxygen, and support wildlife.
- In the United States alone, pollination by honeybees contributed to over \$19 billion of crop production in 2010, while pollination by other insect pollinators contributed to nearly \$10 billion of crop production.

## Why Are Pollinators in Trouble?

Many pollinator populations are in decline because of a loss of habitat – reduced places for feeding and shelter. In addition, the overuse of chemicals in the environment, disease often caused by environmental stress, and changes in climatic patterns all result in the decline of pollinator populations.

## How can you help?

Pollinators need our help. Scientists who have been studying pollinators for decades have been able to show that conservation techniques work. If everyone – homeowners, local governments, national governments, and private industry – made the effort we could change the future for pollinators and secure our own.

Did you know that you can beautify your yard and offer habitat and food for pollinators? The choices you make in planning and caring for your landscape can affect pollinator abundance and species diversity. Just like us, these animals need shelter, food, and an environment safe from harmful chemicals. Here are some things you can do to create a pollinator paradise.

- **Provide Shelter:** Most of our native bee species are solitary and do not live in hives. Instead they nest in dead wood and in the soil. Create structural refuge with things like brush piles, wood piles, and areas of exposed, undisturbed soil. Other pollinators such as bats and butterflies can use man-made shelters.
- **Plant Native Plants:** Native plants naturally attract native pollinators. In fact, many of our pollinators depend on native plants for their survival. Research has

shown that local native pollinators prefer local native plants. Plant clusters of the same type of plant.

- **Be Aware of Flower Size Diversity**  
Many flowers provide nectar. But not all tiny solitary pollinators can handle the big flowers. Vary the sizes and types of flowers you plant. Plants in the mint family like anise hyssop and golden Alexanders have many small flowers that produce lots of nectar. They are attractive to look at and great for solitary bees and other beneficial insects. When you purchase plants that flower, be sure to ask if those plants have been pre-treated with a pesticide.
- **Avoid the “Green Desert” landscape.**  
A mowed lawn and a couple of trees and bushes won't provide the food and shelter that native bees, butterflies and other pollinators need to thrive and reproduce. By making your landscape more complex, you can turn your yard and garden into a welcoming habitat that will benefit our native pollinators.
- **Let your neighbors that you are gardening for pollinators.**  
Announce your commitment to attracting pollinators with a sign from one of many bee-friendly organizations. Together our backyards, public gardens and parks offer the possibility for rich and diverse pollinator habitats. Make yours a pollinator-friendly backyard!

### **How to get started? Plant a pollinator friendly garden!**

If you want to welcome pollinators to your home garden and/or school grounds and/or town's public spaces you need to choose the right place.

#### **1. Sun**

Most pollinator-friendly plants need a lot of sun. Find an area in your yard that is sunny for at least 6 hours a day but safe from the wind.

#### **2. Pollinator-friendly plants**

Keep in mind that most pollinators will find life sustaining nectar in a wide variety of flowers, but butterfly larvae (caterpillars) may require very specific **host plants** to complete their life cycle.

#### **3. Plant some plants that bloom very early... or very late.**

Goldenrod and asters are late bloomers. Basket of gold, golden Alexander, and speedwells are early bloomers.

Don't eliminate dandelions from your yard in the spring. They may be the only flowers available for bees as they come out of hibernation.

#### **4. Pollinators can find nectar plants better if they're planted in clusters.**

Once you have planted your first few pollinator-friendly plants, you may want to expand your pollinator patch. Instead of purchasing different plants, add to what you already have by getting more of the same.

#### **5. Purchase plants that are free of pesticides!**

***“The average lawn gets up to 10 times as much pesticide per acre as farmland”***

<https://organicgrowersschool.org/ask-ruth-finding-neonicotinoid-free-plants-for-pollinator-gardens>

Here is a list of native perennials from the Rutgers NJAES Fact Sheet 1140 “Incorporating Native Plants in Your Residential Landscape” by Meredith Melendez, Agriculture and Natural Resources Agent, Mercer County and Deborah Pinto, Horticulture Consultant, Burlington County See the full article at <https://njaes.rutgers.edu/fs1140/>

Black Eyed Susan	<i>Rudbeckia hirta</i>	Average	Full sun	1–2 ft.
Boneset	<i>Eupatorium perfoliatum</i>	Average-moist	Full sun-shade	3–6'
Bunchberry Dogwood	<i>Cornus canadensis</i>	Acid, average	Part sun-shade	3–6 inches, slow
Butterfly Weed	<i>Asclepias tuberosa</i>	Dry-average	Full sun	2 ft.
Cardinal Flower	<i>Lobelia cardinalis</i>	Average-moist	Part sun-pt. shade	3 ft.
Christmas Fern	<i>Polystichum acrostichoides</i>	Dry-average	Part sun-shade	
Dense Blazing Star	<i>Liatris spicata</i>	Average	Full sun-pt. sun	1–3 ft.
Eastern Joe Pye Weed	<i>Eupatorium dubium</i>	Moist	Sun-pt. shade	3–4 ft.
Eastern teaberry	<i>Gaultheria procumbens</i>	Acid, average	Part sun-shade	3–6 inches, moderate
False Sunflower	<i>Heliopsis helianthoides</i>	Dry-moist	Full sun	3–5'
Foam flower	<i>Tiarella cordifolia</i>	Average-moist	Pt. shade-shade	1.5–2'
Golden tickseed	<i>Coreopsis tinctoria</i>	Average-moist	Sun-pt. sun	1–3 ft.
Great Blue Lobelia	<i>Lobelia siphilitica</i>	Moist -wet	Full sun-pt. shade	3 ft.
Grey Goldenrod	<i>Solidago nemoralis</i>	Dry, poor	Full sun-pt. shade	2' tall
New England Aster	<i>Aster novae-angliae</i>	Dry - average	Sun-pt. shade	2–6 ft.
Pink Tickseed	<i>Coreopsis rosea</i>	Acid, avg-moist	Full sun-pt. shade	18–24 inches
Purple Coneflower	<i>Echinacea purpurea</i>	Average	Full sun	2 ft.
Royal Fern	<i>Osmunda regalis</i>	Average-moist	Shade	6 ft., moderate
Trumpet Honeysuckle	<i>Lonicera sempervirens</i>	Average-moist	Full sun-pt. sun	10–20 ft., rapid
Wild geranium	<i>Geranium maculatum</i>	Average	Full sun-pt. shade	2'

## Sources

[https://www.fs.fed.us/wildflowers/pollinators/What\\_is\\_Pollination/](https://www.fs.fed.us/wildflowers/pollinators/What_is_Pollination/)

<https://www.quora.com/What-are-10-examples-of-wind-pollinated-flowers>

<https://www.quora.com/What-are-10-examples-of-wind-pollinated-flowers>

<https://inhabitat.com/attracting-pollinators-plants-that-encourage-bees-butterflies-and-birds-to-visit/>

U.S. Fish & Wildlife Service <http://www.fws.gov/pollinators/> 1/800 344  
WILD August 2011 Item # FW 7005

<https://inhabitat.com/attracting-pollinators-plants-that-encourage-bees-butterflies-and-birds-to-visit/>

<https://www.nps.gov/subjects/pollinators/what-is-a-pollinator.htm>

<https://pollinator.org/pollinators>

<https://www.youtube.com/watch?v=xHkq1edcbk4> from Wings of Life\

<http://putnam.cce.cornell.edu/gardening/create-a-pollinator-paradise>  
<http://putnam.cce.cornell.edu/gardening/create-a-pollinator-paradise>

Attracting Butterflies - National Wildlife Federation  
[www.nwf.org/Garden-For-Wildlife/Wildlife/Attracting-Butterflies.aspx](http://www.nwf.org/Garden-For-Wildlife/Wildlife/Attracting-Butterflies.aspx)

<https://www.audubon.org/content/why-native-plants-matter>  
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[https://xerces.org/wp-content/uploads/2016/10/2017-051\\_NortheastPlantList\\_Dec2017\\_web-4page.pdf](https://xerces.org/wp-content/uploads/2016/10/2017-051_NortheastPlantList_Dec2017_web-4page.pdf)

**You may purchase 100% pesticide-free native plants from the following.**

**Morgan's Farms** (In person purchases Saturdays: 9am - 1pm - May to Oct)  
903 Pompton Ave, Cedar Grove, NJ 07009 <https://www.morgansfarm.org/>  
(973) 239-5414

**Pinelands** (Order online for shipping or pick up)  
323 Island Road, Columbus, NJ 800-667-2729 [www.pinelandsnursery.com](http://www.pinelandsnursery.com)  
(609) 291-9486

**Toadshade Wildflower Farm** (Order online for shipping plus in-person plant sales at various events. Check website for details and locations.)

53 Everittstown Rd.,

Frenchtown, NJ 908-996-7500 [www.toadshade.com](http://www.toadshade.com) (908) 996-7500

**Wild Ridge Plants** (Order online and pick up by appointment only)

170 Mountain Rd, Alpha, NJ 08865

[www.wildridgeplants.com](http://www.wildridgeplants.com) (908) 319-7230

**Bowman's Hill Wildflower Preserve & Native Plant Nursery** (In person purchases)

1635 River Road, New Hope, Pennsylvania <https://bhwp.org/> 215-862-2924

Shown below is a native plant garden in front of a home on Westville Avenue, Caldwell with coreopsis, coneflower, and butterfly weed.

