

USDA Forest Service Celebrating Wildflowers

What is Pollination?

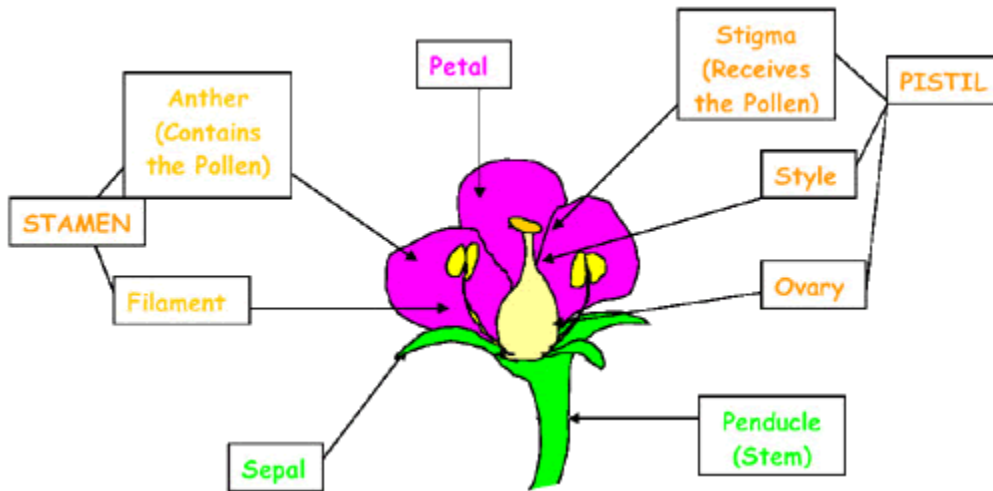
Pollination is the act of transferring pollen grains from the male [anther](#) of a flower to the female [stigma](#). The goal of every living organism, including plants, is to create offspring for the next generation. One of the ways that plants can produce offspring is by making seeds. Seeds contain the genetic information to produce a new plant.

[Flowers](#) are the tools that plants use to make their seeds. The basic parts of the flower are shown in the diagram below.

Seeds can only be produced when pollen is transferred between flowers of the same **species**. A species is defined a population of individuals capable of interbreeding freely with one another but because of geographic, reproductive, or other barriers, they do not interbreed with members of other species.



Yellow jacket. Photo by Dr. Jim Cane, USDA ARS Bee Biology and Systematics Laboratory, Logan, Utah.



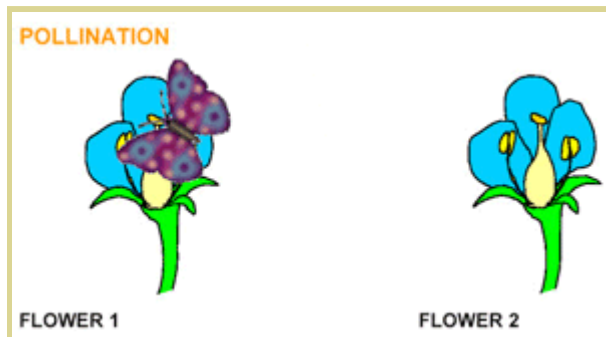
How does pollen get from one flower to another? Flowers must rely on vectors to move pollen. These vectors can include wind, water, birds, insects, butterflies, bats, and other animals that visit flowers. We call animals or insects that transfer pollen from plant to plant "**pollinators**".

Pollination is usually the unintended consequence of an animal's activity on a flower. The pollinator is often eating or collecting pollen for its protein and other nutritional characteristics or it is sipping nectar from the flower when [pollen](#) grains attach themselves to the animal's body. When the animal visits another flower for the same reason, pollen can fall off onto the flower's [stigma](#) and may result in successful reproduction of the flower.

Pollen from the anthers of Flower 1 is deposited on the stigma of Flower 2. Once on the stigma, pollen may "germinate," which means that a "[pollen tube](#)" forms on the sticky surface of the stigma and grows down into the [ovule](#) of the plant.

This growth can result in:

- Successful [fertilization](#) of the flower and the growth of [seeds](#) and [fruit](#); or,



- A plant can be only partially fertilized, in which the fruit and/or seeds do not fully develop; or,
- The plant can completely fail to be pollinated, and may not reproduce at all.

Plants can be:

- **Self-pollinating** - the plant can [fertilize](#) itself; or,
- **Cross-pollinating** - the plant needs a vector (a pollinator or the wind) to get the [pollen](#) to another flower of the same species.

Visit [The Birds and the Bees](#) web page for more information about plant breeding systems.

Why is pollination important for native wildflowers?

Virtually all of the world's seed plants need to be pollinated. This is just as true for cone-bearing plants, such as pine trees, as for the more colorful and familiar flowering plants. Pollen, looking like insignificant yellow dust, bears a plant's male sex cells and is a vital link in the reproductive cycle.



Photo by Jeff Motychak.

With adequate pollination, wildflowers:

- Reproduce and produce enough seeds for dispersal and propagation
- Maintain genetic diversity within a population
- Develop adequate fruits to entice seed dispersers

The Simple Truth: We Can't Live Without Them!

Pollination is not just fascinating natural history. It is an essential ecological survival function. Without pollinators, the human race and all of earth's terrestrial ecosystems would not survive. Of the 1,400 crop plants grown around the world, i.e., those that produce all of our food and plant-based industrial products, almost **80%** require pollination by animals. Visits from bees and other pollinators also result in larger, more flavorful fruits and higher crop yields. In the United States alone, pollination of agricultural crops is valued at 10 billion dollars annually. Globally, pollination services are likely worth more than 3 trillion dollars.



Get the brochure: [The Simple Truth: We Can't Live Without Them!](#) (PDF, 1.0 MB)

For More Information

- [Wildflower Pollination](#) - view more information about wildflower pollination on "The Pollination Home Page" website.
- [Photographic Plant/Pollinator Database](#) - view pollinators and their host plants on the Photographic Plant/Pollinator Database of the "The Pollination Home Page" website.

Location: <http://www.fs.fed.us/wildflowers/pollinators/whatispollination.shtml>

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