

# The Buzz About Pollinator Gardening

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Honeybee cleaning nectar off its face after pollinating a Yellow Bell (*Tecoma stans*) flower.

**P**ollinator gardening has become a popular pastime for many gardeners. Incorporating pollinator gardening into a normal vegetable and flower garden is not only simple but can be fun and beneficial. It can increase fruit and vegetable yield in addition to the reward of attracting and observing wildlife. Many gardeners keep pollinator sighting lists and proudly compare these with friends.

Pollinators are animals that move pollen from flower to flower. This is important because without the movement of pollen, reproduction could not occur. Pollen is moved from the male part of the flower (anther) to the female part of the flower (stigma). Animals do not consciously pollinate, they visit flowers looking for nectar and transfer pollen stuck to their bodies as they move from flower to flower. Many insects also consume pollen. This relationship has evolved over 144 million years and most plants need to be pollinated to produce flowers, fruits and seeds (Buchmann and Nabhan 1996). Animal pollinators include bees, butterflies, moths, flies, beetles, bats and birds. In other countries, animals such as monkeys and rodents can even serve as pollinators. One third of human food crops such as cucumber, melons, tomatoes, almonds, onions and strawberries are pollinated by animals. Thanks to pollinators, 10 billion dollars in crops are produced in the US every year (Watanabe 1994). They are also responsible for 60-80 percent of the

pollination in non-food flowering plants such as wildflowers and native trees (Black et al 2007).

There has been a severe decline in both native and managed pollinator numbers. Honeybee colony populations have dropped by fifty percent since 1945 (Mader 2009). This is due to many factors including disease, loss of habitat, decreased food quality and pesticide use. Pollinator gardens provide a variety of components to make a complete pollinator habitat to increase pollinator populations. Replicated in yards across the county these gardens can provide necessary nectar corridors in what are otherwise fragmented landscapes. You don't need a large amount of space to have a pollinator garden. Even people living in apartments can have one. First, start with an inventory of the plants you have and who is visiting them. Then decide which pollinators you would like to attract and plant the flowers that will bring them. When selecting plants choose a variety of flower shapes, sizes and colors because the larger the diversity of plants the larger the diversity of pollinators you will attract. It's also important to have plants that bloom through the year so that pollinators always have something to eat. Ideally you want at least three different plants in bloom during each season. Choosing native plants is ideal because native pollinators are adapted to them and the plants are adapted to the native soil,



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Fritillary butterfly caterpillar on Passion Vine (*Passiflora vitifolia*).

moisture and temperature conditions. Native plants may provide more nectar than many ornamentals that have been bred for color or style. Heirloom plants and herbs can also provide large amounts of nectar. Remember that native plants take a few years to get established so be patient. If you're not going to use native plants make sure to select plants that work well in your hardiness zone. Plant flowers in clumps so they are more easily found.

To provide a complete habitat your yard should also include an area for pollinators to rest and get water, as well as nesting sites. Bird baths, fountains or dripping irrigation lines that flow into shallow dishes are great options for resting/watering sites. Nesting sites are just as easy; many bees and wasps nest in bare soil so leave open ground for them. Beetles nest in twigs and dead branches and their homes can eventually be converted by some solitary bees into nesting sites. Bee houses can also be used to attract solitary bees if you do not want to leave twigs and branches around. They are simple to make and can be fun projects to do with children. Other pollinators can use upside down flower pots and piles of stones to nest in. Piles of small twigs and string can encourage nesting birds.

While providing habitat for pollinators it is important to minimize or avoid pesticides in your yard. Insect pollinators are very susceptible to pesticides. Recovery after pesticide application is slower because they reproduce more gradually than pest insects. If you must use pesticides try less persistent products and always make sure to follow label instructions. Another option is to spray at night since many pollinators are daytime fliers. But watch out for night pollinators like moths. Buffer zones between sprayed areas and where pollinators visit can help protect them and never spray during windy conditions where chemicals can drift.

Plants pollinators and the flowers they enjoy:

Bats enjoy large (1-3.5 inch) bowl shaped flowers with light colored petals and lots of fruity smelling nectar. Since bats are night time fliers they pollinate flowers that open at night. Many of the plants they pollinate in Arizona are night blooming cactus. They also feed on insects found in the flowers.

Bees have different vision than humans; they only see reflected light from yellow-green, blue-green, blue-violet flowers and ultraviolet light. The color red is not visible in their spectrum at all. This special vision helps them to see what is sometimes termed landing patterns or nectar guides. Series of lines and dots help bees zero in on nectar. For this reason bees are most attracted to light colored flowers. Bees enjoy tubular shape flowers with a light sweet smelling with nectar located in the back of the flower tube like the flowers of the Desert Willow.

Many people are scared to attract bees into their yard for fear of being stung. While this is a possibility, it is not likely. Bees are not out to sting humans because once they do they die. Instead they enjoy browsing from flower to flower and staying to themselves. The majority of native bees are solitary and do not have a hive to protect which makes them even less likely to sting.

Beetles are attracted to bowl shaped, wide open flowers, such as asters. These are usually dull white and green flowers ranging from no fragrance to a strong fruity smell.

Butterflies with their long mouthparts enjoy flowers with flat tops or clustered tubes. They are attracted to red, yellow, orange, pink and purple blossoms. Feeding occurs on flowers in full sun not shade. These pollinators also enjoy fruit, so place overripe bananas, oranges and other fruits in a dish in your garden. The most important thing to remember is that in order to get butterflies you have to have caterpillars.

Make room for them by allowing them to eat leaves and stems. Don't worry, most caterpillars will not kill your plants. As mentioned earlier, butterflies need water. Puddling is a common way for butterflies to drink and also get needed minerals. To simulate a mud puddle in your garden place sand in a shallow dish on the ground with a drip emitter that will keep the dish full of water. You can also provide a sponge soaked in lightly salted water which provides needed micronutrients. Sea salt is better than table salt because it provides more nutrients.

Flies have short mouthparts and are attracted to flowers with a simple bowl shape. Many times nectar on these flowers is exposed. Fly pollinated flowers can have a sweet smell but many smell like decaying organic matter. They like flowers in shades of green, white, and cream.

Hummingbirds are attracted to brightly colored (red, orange, yellow) trumpet shaped flowers with lots of nectar. The flowers are odorless and open during the day. You can also put out hummingbird feeders with syrup made of one part white cane sugar and four parts water. It is not necessary to add red food coloring. Make sure that in extreme heat the solution is changed and feeders are cleaned regularly to avoid sickness in the birds.

Moths, like their relatives the butterflies, have long mouthparts they use to drink nectar from flowers with long tubes. Most are nighttime

fliers and are attracted to white or light colored flowers that are visible at night. Many of these night blooming plants have a very sweet smell.

For more information on which plants to pick visit the following sites:

<http://www.wildflower.org/plants/>

<http://pollinator.org/pdfs/AmericanSemiDesert.rx8.pdf>

## References:

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Chuparosa (*Justicia californica*) is a favorite for many pollinators including hummingbirds.

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