

Pollinators: A Key to a Colorful World

Did you know that 90% of all flowering plants and 1/3 of human food crops require animal pollination for reproduction?

Who are the pollinators and why are they important?

Bees: Bees are the best pollinators in the Eastern United States and their tireless work benefits the reproduction of a myriad of crops essential to human existence such as, alfalfa, melons, soybeans and tomatoes.

Not all bees are created equal and most of us are familiar with the colonies of honey bees that have provided agricultural pollination in America for decades. These honey bees were first imported to America from Europe more than 400 years ago. In addition to these celebrity-type imported workaholics, there are nearly 4,000 species of less well known native ground and twig nesting bees in the US! Some of these native bees form colonies but others maintain a solitary life of tireless servitude that results in the production of fruits, vegetables and nuts for the benefit of us all.

Native bees currently pollinate many commercially important food crops and their numbers can be increased if their nesting habitat, nectar and water needs are known and are provided by the average homeowner.



Bumble Bees, *Bombus spp.*: According to some engineers, bumble bees shouldn't be able to fly. Their bodies are too big and heavy and their wings are too short to sustain their weight in flight. Somehow they manage to overcome

their institutional limitations on flight and buzz from flower to flower completing their pollination tasks. Bumble bees form small colonies, usually underground, and bumble bee habitat can easily be created with a short length of old garden hose and a styro-foam cooler. The bumble bees size can limit their ability to pollinate as their ample bulk may be just too large to fit inside smaller flowers. Bumble bees are important pollinators of tomatoes.

Sweat Bees, *Dialictus zephyrum*, or common sweat bee, are small native bees that nest underground in loose colonies revolving around several egg-laying queens.



Sweat bees get their name from their attraction to the salts in human perspiration. Sweat bees will visit and pollinate a variety of flowers and will sting only if handled. Due to their small stature sweat bees can pollinate the smaller flowers that elude the bulky bumble bee.



Orchard Bees, *Osmia lignaria*.

The orchard bee is the common name of a small native, non-social bee that is an important pollinator of our spring fruit trees, flowers and vegetables. Orchard bees collect pollen and nectar and combine these as a "food source," as the female lays their eggs in a small diameter hole or cylinder. Orchard bee nesting habitat can be easily created by taking a 4 x 6" block of untreated wood and drilling holes to the depth of 3 1/2" (don't drill all the way through). The orchard bees will use these ready made shelters by combining their nectar/pollen "food source" with eggs and then partition each with a packet of mud, laying eggs the entire length of the drilled holes until finally plastering the eggs in by sealing the opening with a final layer of mud. As orchard bees need housing for habitat, they also need raw materials to create their egg partitions and mud seals, so create a small wet area of soil next to your bee house to allow the bees access to raw materials needed for their "nursery."



Photo by Marty N. Davis

Butterflies, *Lepidoptera*:

Attracting these colorful pollinators to your home garden is an excellent way to assist your plants in producing an abundant harvest year in and year out. Butterflies have exacting habitat requirements that depend on which stage of metamorphosis they are currently cycling through.

The adult butterfly requires flowering plants from which to collect nectar. To ensure a diverse population of butterflies plant a range of trees, shrubs and flowers that include an extended period of flowering and many different colors.

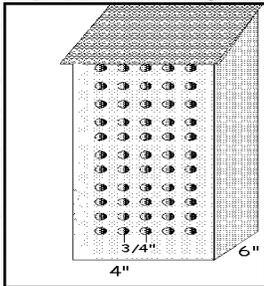
Essential butterfly habitat also includes specific "larval host plants" for the caterpillar stage of the butterfly's life cycle. Most butterflies in the caterpillar stage have very specific plants on which they feed such as Milkweeds for the Monarch, Parsley and Dill for the Black Swallowtail and Hollyhocks for the Painted Lady. Planting these species will increase the likelihood that butterflies will visit and help to pollinate the plants in your garden, thus helping to produce abundant seed, fruits and vegetables for the benefit of all.

Butterflies are generally attracted to bright colored flowers and seem to prefer those that provide a good landing platform. These stable platforms may be found in the flat or round clusters of Viburnum, Asclepias and Buddleia.

Moths: Moths can also be important pollinators and share an important niche in nature with butterflies. Moths can easily be distinguished from butterflies by their antennae. Butterfly antennae are simple with a swelling at the tip. Moth antennae differ from simple to featherlike but they never



have a swelling at the tip. Most moths, but not all, perform their pollinating chores at night. One very noticeable exception to the night rule is the Hummingbird Moth (seen above) that actively nectars during the daylight hours. Whereas butterflies are attracted to flowers due to their bright colors, moths in the subdued light of night, use scent and fragrance to locate their flowers of choice, which are usually white or pale colored.



Orchard Bee House

Orchard bee houses can be made by drilling 5/16" diameter holes 3 1/2" deep and 3/4 " on center throughout a 4 X 6 " block of **untreated wood**. Face the bee house southwest and keep the occupants protected under an eave of your house on the porch, or just install a roof on their house. If you choose to put the roof on the house and not attach it to a protected porch or eave it is best kept at 3 1/2 ' above the ground. Don' t forget to keep a moist area of bare soil available for the bees to use for mudding up their egg chambers and sealing the nursery.

For additional information:

1. http://www.uen.org/utahlink/activities/view_activity.cgi?activity_id=2030
2. http://www.sare.org/publications/bee/blue_orchard_bee.pdf
3. <http://www.ces.ncsu.edu/depts/ent/notes/Other/note109/note109.html>
4. <http://www.pollinator.org/pdfs/EasternBroadleaf.Oceanic.rx18.pdf>
5. <http://butterflywebsite.com/articles/bgg/buddleia.htm>

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