

Pollinator Garden Basics

"Chances are you never thought of your garden--indeed, all of your property--as a wildlife preserve that presents the last chance we have for sustaining plants and animals that were once common throughout the U.S. But that is exactly the role our suburban landscapes are playing."

Douglas Tallamy, Professor of Entomology and author of [The Living Landscape: Designing for Beauty and Biodiversity in the Home Garden](#) and [Nature's Best Hope: A New Approach to Conservation that Starts in Your Yard](#)

[Designing for Beauty and Biodiversity in the Home Garden](#) and [Nature's Best Hope: A New Approach to Conservation that Starts in Your Yard](#)

Guiding Question

How can I create a pollinator garden for native bees and butterflies that will provide the essential elements for a thriving, sustainable pollinator community?

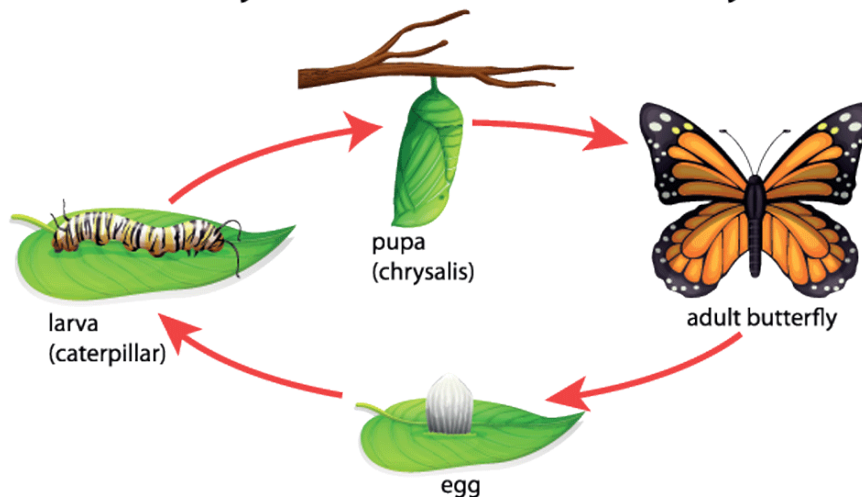
Background Information

Pollinators

Many animals are pollinators. Our garden project will focus on the insects, more specifically the native bees and butterflies. Once your garden has been created, you will be able to observe more than just many different native bees and butterflies but also hummingbirds, beetles, and wasps pollinating your native flowers.

Butterfly Life Cycle

Life Cycle of a Monarch Butterfly



Complete metamorphosis of a Monarch butterfly

Bee Life Cycle

The life cycle of the bumble bee is similar to that of the butterfly. After spending the winter underground, one type of queen bee emerges and begins looking for a suitable place to create the nest. When she has found her nest's location, she creates a mound and lays the eggs. The queen keeps the eggs warm until the larva hatch from the egg. The white larva feed on the pollen and nectar which the queen collects and provides. When the time is right,



the larva bee spins a cocoon. About two weeks later they emerge from the cocoon as adult bees.

Nectar plants and Host plants for Pollinators

Host Plants

The butterflies' larval form, caterpillars, are picky eaters. They will only eat specific types of plants. For example, Monarch butterflies will only lay their eggs on milkweed which is the only food for a Monarch caterpillar. There are at least 3 different types of milkweed in Oklahoma, and they may lay their eggs on any of these milkweed plants. If there is no milkweed available, they will simply not lay any eggs. The Eastern Black Swallowtail is not nearly as picky as the Monarch butterfly. It will lay its eggs on any plant in the carrot or Umbelliferae family that includes parsley, fennel, carrot tops, and Queen Anne's lace to name a few. It will also lay its eggs on the plant known as rue.



Monarch butterfly



Eastern Black Swallowtail butterfly

Why do you think butterflies only lay their eggs on specific plants? How does this help them survive? Think about this. If you're the only person in your family who likes to eat your favorite food, think about how much more of it you would get. No one else would be competing with you for it. Avoiding competition for food helps the butterflies survive.

When designing your Pollinator Garden, you will want to think about the butterflies you will attract and make sure you have several host plants for their eggs.

Nectar Plants



Milkweed



Bee balm

Butterflies prefer flowers with multiple flowers clustered together. Examples of this are milkweed and bee balm. This cluster allows the butterfly to save energy by simply walking to the next flower for nectar.





Bumble bee and sweat bee on the same flower for size comparison.

A bee's source of nectar is often determined by the length of its tongue. Bumble bees and butterflies both have long tongues. The small, metallic green sweat bee has a very short tongue. Flowers of various sizes will, therefore, attract a greater variety of native bees.

Providing blooming flowers from April to October will provide food throughout the season. Providing a variety of nectar plants (8-20 varieties) will attract more pollinators. Groupings of the same host or nectar plant will allow butterflies and native bees to save energy when seeking food or a place to lay eggs.

The Winter Garden

Even though the winter garden appears lifeless, many of the pollinators will be tucked into a variety of shelters in the garden. Some will overwinter as an adult, others in the larva or pupa form. Some may even overwinter as eggs. When you maintain your winter garden be aware of the various life stages of both bees and butterflies that may have settled into the leaf litter, dead branches, and underground.

Additions to the Pollinator Garden

If you have a pet dog or cat, you might have seen them sleeping in a sunny location. You might even have enjoyed trying this. Pollinators enjoy doing this, too. It is called basking. You may have noticed that a rock that has been in the sun for a while will stay warm even in the shade. When the days are cool, a nice flat rock can be a great place for pollinators to bask.

Pollinators need more than just the sweet nectar from flowers. In order to get the vitamins and minerals that they also need, some pollinators enjoy a behavior called puddling. When puddling, these pollinators are taking in the minerals found in a puddle of mud. But mud is not the only source that they might use to get these additional nutrients. Pollinators can also be attracted to rotting fruit or even human sweat. If a butterfly or bee lands on you on a hot, sweaty day, just enjoy your new buddy and they will enjoy the tasty salt and other nutrients your sweat provides then leave a bit healthier than they were before you fed them.



Bumble bee enjoying the sweaty minerals on a finger.

Interesting Behaviors

Unlike the non-native honeybee, most of our native bees are not inclined to sting. However, never blow on a bee. Blowing your CO₂ on them says that your mouth is near them, and you are considering eating them or stealing their food. This is not something they will like.



Sustainability

What is a simple definition of sustainability?

Sustainability means meeting our own needs without making it hard for future generations to meet their own needs. In addition to thinking about the way we handle our natural resources, we should consider how people in other neighborhoods, cities, or even countries are living. Do they have the resources that they need and are those resources healthy?

What does creating a pollinator garden have to do with sustainability? There are many ways that planting native plants and animals affect the amount and quality of our natural resources.

Native Plants

All native plants have evolved to survive the climate of their native ecosystem. They need less water and care once they are adult plants. They can survive the rough weather conditions of their native habitat and will typically grow back quickly if they die. Once they are healthy adult plants in your garden, these plants should need almost no extra water unlike most of the plants you will find at the big home garden stores.

If you've heard anything about climate change, you probably know that one of the biggest reasons for the changing climate is the excessive amount of carbon in the atmosphere. You probably know, too, that animals use the oxygen in the air and breathe out carbon dioxide as a waste product, and that plants take in and use carbon dioxide and "exhale" the oxygen that animals need. Plants use this carbon to grow and so they are great at pulling carbon out of the atmosphere and storing it in the leaves, stems, and roots. Plants that are native to an ecosystem are the best plants for doing this.

Soil and water conservation are two very important parts of living sustainably. Healthy soil and water are important for growing the food we need. Water is necessary for all life on Earth and maintaining its purity and availability is an issue in many parts of the world. Plants that are native to an ecosystem will survive on the water that is typically available in that ecosystem. Unlike the tropical plants found in so many gardens, native plants will not need to be given extra water to make it through a routine dry season. This will conserve drinking water and help to keep our supply of water plentiful. Native plants do not need additional fertilizer to thrive, either. Not using fertilizer will help keep the soil's natural organisms that create natural fertilizer for healthy soil. Also, without using additional fertilizer there is not risk of having that fertilizer wash away and into our rivers and lakes making them unhealthy and making it difficult for future generations to get the food and water they need.

Native Animals

All native animals have evolved to survive the climate of their native ecosystem and to feed on and make their homes in the native plants. Our native pollinators pollinate the plants that give people the food they need. If we do not support the survival of our pollinators, we may lose the ability to provide the food that is needed for humans and all other animals to survive.

Tips for your Research

- When researching a plant or animal, use the scientific name, Genus species, so you are sure to get the one that you want. Common names can be used for more than one species and can vary from region to region in our country. Also, some native plants have been bred to create fancy new colors and may no longer have the nectar that the pollinators need.



- Internet resources that are created by educational groups are often very reliable.
- *Keep track of your resources!* It's easy to copy and paste a webpage's address to a document. A quick note about what you found on the site will help, too. Don't forget books and magazines, too.
- Check your state and local nonprofit groups. There are many groups with interests in pollinators, butterflies, bees, native plants, etc. Use these as "key words" when searching the internet if your teacher allows that.
- The local groups mentioned above may also have experts that can help with your research. If you talk with them, be sure to give them credit in your work.

And...

- If you are buying your own plants, be sure to get them from a plant store that has been selling these plants specifically for pollinators. Many plant stores now sell plants that have been treated with insecticides so that their plants will remain "perfect" and not eaten by insects. You want plants that are going to be safe for insects to eat. And if you get a plant from a pollinator-loving person that has holes in the leaves or chewed-on leaves, you may be getting a free caterpillar with your plant!

