

CREATING A POLLINATOR GARDEN

Wildflowers are beautiful, ecologically valuable additions to any home landscape. Their colors span the rainbow, and their varying heights, forms, and flower shapes will spark your imagination while warming your heart. You can support pollinators and other native wildlife by planting native flowering plants. Native plants can be grown to help restore pollinator populations, create patches of wildflowers in yards or roadsides, enhance ornamental gardens, protect your vegetable gardens with beneficial insects, and more!

Considerations for Pollinator Habitat

1. Associations with plants
 - Pollinators and plants have evolved together. Focusing on using plants that are native to your region will help the amazing diversity of pollinators in your area.
 - Non-native plants that provide nectar and pollen to pollinators can also help support some pollinators. Guidance can be found at [Selecting Plants to Support Pollinators](#).
2. Continuous bloom throughout season
 - Different pollinators are active at different times of the year. A healthy habitat has plants that bloom throughout the period when pollinators are active, usually from very early spring to fall.
3. Host plants for moths and butterflies
 - Caterpillars live on and eat the soft tissue of plants before they turn into adult moths and butterflies. Often, these caterpillars specialize on a very specific type of plant, known as a host plant. A wide range of host plants means a wide range of moths and butterflies that can thrive in a habitat.
4. Moist soil and water
 - Some pollinators get all the water they need from flowers' nectar and dew, but others need clean water to drink (honey bees) and moist soil to get necessary minerals or build their nests (mason bees).

5. Pesticide-free areas
 - Pollinators need areas that are free from harmful pesticides. Try to not use any chemical pesticides in your habitat and if you do, read and follow the label directions.
6. Nesting and overwintering areas
 - Pollinators lay their eggs in a range of different nesting sites, from intricate below ground tunnels, to tunnels in old wood and plant stems, to the canopies of trees. A healthy habitat includes some variation in structure to accommodate nesting needs.
7. Invasive species
 - Remove and never plant plants that are invasive in your area. Non-native, invasive plants have a competitive advantage outside their native area, removed from the other plants, insects, and microbes that keep them in check. They can move outside your garden, to wild spaces, crowding out native plants that are needed by native pollinators. Search online for what invasive species are present in your area.
8. Leave wild areas of vegetation, leaf litter, and brush
 - Take inspiration from the natural areas around you and avoid overly-manicured landscaping. Letting patches of your yard simply grow and bloom can provide shelter and food for insects and wildlife. This allows the plants in your yard to provide resources for nesting and hungry pollinators, and other wildlife, throughout the year.

Instructions for Creating a Pollinator Garden

The following is a short introduction to preparing and creating a space that invites in and supports pollinators. For more in-depth information on habitat creation see our [Guide to Guides](#).

Step 1: Site selection and preparation of the area are very important for successful wildflower habitat creation.

1A. Site Selection:

While shadier areas can be used to create pollinator habitat, you will support the most pollinators in a sunny habitat. Determine what type of soil is predominant at your location, as well as drainage/moisture level, and choose plants based on your specific site conditions. Consult with your state or local native plant society or native plant nursery, an

organization such as Wild Ones, or your local extension office, master gardeners, or master naturalists, to understand what types of plants will thrive in your area.

1B. Site Preparation:

To create a pollinator habitat, you will need an area that has bare soil, which may involve removing weeds or grass, thinning out existing plants, or removing or pulling back mulch (soil coverings such as wood chips or leaves). If you are going to plant into an existing garden, then create some open patches of bare soil. If you want to create a new garden area in a place that is currently weedy or turf grass, here are just a few of the many options to prepare your site:

1. Remove the sod/grass or hand weed the area, being careful to minimize soil disturbances, such as occurs with tilling. Reducing soil disturbance will help reduce the number of weed seeds that come to the surface and grow after weeds or turf are removed.
2. Sheet mulch the area with layers for more immediate planting or seeding. Cover the area with cardboard or other biodegradable layers to kill underlying vegetation. This material will break down while your plants get established. Add a two or three inch layer of mulch (such as compost, leaves, wood chips) and plant directly through the cardboard. Note, it can be somewhat challenging to plant into the existing ground below the cardboard if the ground is compact or the vegetation is thick such as turf grass. Minimize the size of holes cut in the cardboard or biodegradable layer to minimize grass or other weeds coming through. This method is appropriate if you want to establish plants quickly. If you'd like to seed the area, add weed-free soil on top, then you can plant or sow seed right away, on top of the cardboard or other biodegradable material.
3. Smother the area for at least four months by laying down something that blocks light, such as cardboard, landscape fabric, or a tarp. Remove the barrier when it's time to plant and carefully remove any undecomposed dead vegetation while reducing soil disturbances.
4. Solarize the area using 6 mil UV resistant greenhouse plastic (reuse or recycle plastic whenever possible) for six to eight weeks during summer. Mow and wet the area, lay down the plastic, and bury, pin, or weigh down the edges. When ready, remove the plastic and any undecomposed dead vegetation. Seed or plant on the solarized soil.

If you are planning to create habitat in pots, very little preparation is needed. Make sure you have some pots with soil and good drainage, and you are ready to go!

Step 2: Planting Your Garden

Selecting plants:

Native plants use less water and are adapted to local weather patterns, requiring less water and maintenance once established. Additionally, plants native to your area support locally native pollinators. Non-native plant species can also provide benefits; however, make sure any non-native plants that you use are not invasive in your region (search online for lists of invasive plants in your region). Wildflowers, grasses, shrubs, vines, and trees can all be beneficial, so choose what fits your site best. If possible, aim for a mix of plant structures, a range in bloom times, and diverse flower shapes/colors. To start you on your plant selection journey we have multiple resources, such as our [Garden Recipe Cards](#), our [Ecoregional Planting Guides](#), [Selecting Plants to Support Pollinators](#), and our Find Your Roots tool (for the [United States](#) and [Canada](#)).

Characteristic	Seeds	Plants
Cost	Less expensive, but good for large areas.	More expensive, but good for smaller habitat or for larger habitat mixed with seed.
Coverage	Can fully cover an area; plants will come up in all places.	Plants spaced so that as they grow to maturity, they fill in the area. Empty spaces around plants before they mature. Bare ground can be mulched with wood chips, straw, leaves, or other natural materials to keep weeds down.
Planting time	More sensitive to timing; fall (before rainy/cold season) is best, but early spring can also work. Do not sow seeds in the late spring or summer.	Can be planted any time of year, but if planted during the dry/warm season, they will need to be watered frequently for the first year.
Establishment	Takes 2-3 years for good establishment; annual plants with flower the first year, perennial plants will take 2-3 years to establish roots and flower.	Can result in a great looking garden as soon as planted and gets better over time as plants grow.

Seeding your site:

Once your area is prepared, and you have some vegetation and weed free soil, you can think about sowing seeds. The best time to sow your seeds in the southern and western US is in the fall, before the winter rains. You can sow seeds in late winter or early spring if you can water the area periodically after the spring rains end. In the northern and eastern regions of the US, sow seeds in the fall, early winter, or spring. Some seeds need an overwintering period (stratification) in order to germinate. Don't sow seeds in summer—often it's too hot and dry for good germination and wildlife will eat many of them before they can germinate next fall or spring. Bulking up your seed mix with a handful of clean sand or vermiculite can help you spread your seeds more evenly across your site. Sow your

seeds evenly across your prepared area and gently rake, use a roller or plywood, or walk over the soil to firmly press the seeds into the soil. You want the seeds to have contact with the soil, but not be buried more than 1/8 inch. If sowing into pots or planters, simply sprinkle seeds on the surface of the soil and press gently.

Planting your site:

Plants are a little more flexible for planting time than seeds—while fall is usually best, plants from pots can be planted any time of year as long as they get regular (2-3 times per week) water from the sky or your hose, for the first year. Water plants immediately after planting. You can put some mulch (such as wood chips, compost, straw, or leaves) around the plants to reduce weeds.

What to expect:

The first year after seeds are sown, the new plants put most of their energy into establishing roots as opposed to above ground biomass, so your garden may not put on much of a show, but don't get discouraged! In year two you will start to see more blooms, and by year three your garden, planted from seed, will really take off. The annuals in your mix will flower in the first year after seeding your area. Your annuals can self-sow each year if you help maintain patches of bare soil. Most of the perennials in your mix will grow root systems during year one, expand leaves and flowers during year two, and reach mature sizes during year three. Your perennials will regrow from their roots, or if woody or vines, from the above ground plant, each year. Habitat created from potted plants will look great right away and will continue to look better each year, with the proper care, as the plants grow and fill the area.

Step 3. Maintaining your pollinator garden

Maintenance is crucial for successful pollinator gardens. If areas are well prepared, then less maintenance will be required. Be sure to control weeds so they don't take over the habitat. Pull weeds whenever you see them but continue to minimize soil disturbances and occasionally apply thin layers of mulch to open soil to reduce weeds. Note however that ground nesting bees have difficulty nesting through mulch— they prefer bare soil. Many species don't need large expanses of bare soil but rather can nest in tiny areas of soil between plant stems or shrubs, and under clump-forming vegetation like ferns and bunch grasses. You can replant with native plants in following years if you need to fill in gaps. Think of pollinator garden maintenance like brushing your teeth; consistent care is key to keeping your habitat free of weeds and buzzing with pollinators.

If you sow seeds or plant plants at the right time for your region, then you may not need to water them at all. They will establish roots in the first year, and since they are native plants, they are adapted to seasonal rains and dry periods. Remember, native plants are meant to

thrive in your region, and if seeds are sown when they would naturally fall from plants, or plants timed to be planted before the wet season, they will need little supplemental water from you. However, with changing climate and if seeds or plants are sown outside of the ideal season, then some supplemental water can help your plants establish and produce more blooms. If supplemental water is warranted, aim for an inch or two of water per week every two or three days for the first few months. If there is drought that is unusual for your region, then give your plants more water. Once native plants are established (one year after planting from plugs, 2 years after sowing seeds), they should not need any additional water. The exception is plants growing in pots—they will need to be watered regularly, as the plant roots can't expand beyond the pot, and the pot soil will dry out in the dry season.

You can enjoy your garden and watch it change throughout the seasons and years. Pick some flowers for indoor bouquets. Divide and transplant some of the long-lived perennials to make room for annuals and expand your habitat. Harvest some seeds and spread them around your garden. Share extra plants with your family, friends, and neighbors. Leave the leaves and seed heads through the winter and prune in early spring to create nesting habitat for caterpillars and solitary bees. You can leave the pruned branches or stems in your yard, in case any bees have overwintered in them. Take notes and photographs to track your garden through time. Participate in our [iNaturalist project](#) or a local community science project to help expand our knowledge and understanding of native plants and their pollinators.

Join our [Bee Friendly Gardening](#) program to connect with a larger network of individuals gardening for pollinators. Most of all, enjoy your pollinator garden and all the wonderful life it brings to your yard. Thank you for helping pollinators, people, and the planet!