

URBAN POLLINATOR CONSERVATION



Conserving Pollinators With Edible Landscaping

Not all pollinator habitats need to be ornamental, and readjusting our notions of aesthetics opens the door to a world of gardening possibilities! Edible landscaping has the added benefit of providing nutritious and locally sourced food for the home gardener while providing much-needed resources to local pollinators. This is particularly important in urban areas, which often have fragmentation of native pollinator habitat. Networks of private and public gardens, both ornamental and edible, can provide considerable conservation and biodiversity benefits for pollinators throughout the area.

Pollination is a service provided by native and managed bees that is essential for the production of many crops. In fact, one in every three bites of food we eat relies on pollination. This includes some of the most nutritious components of our diets, such as fruits, vegetables and nuts. Even though pollination may not be directly necessary for a plant to produce the part that we eat, such as carrots, onions and other root vegetables, pollination is needed to produce the seeds that will grow into more plants.

But we are not the only ones to benefit from the interaction of pollinators with flowering crop plants. Edible crop plants produce pollen and nectar specifically to attract their pollinators. Commercial agricultural operations rely heavily on honey bees for crop pollination, but a number of native bees are more efficient crop pollinators. Providing these plants in your home garden enhances urban pollinator habitat while allowing you to enjoy the freshness and flavor of home grown produce, as well as savings on grocery bills!

Design considerations. Most fruits and vegetables require 6-8 hours of sun a day to produce well, so site selection is an important first consideration. When arranging plants, be sure to account for final plant size, since many vining varieties, like cucumbers or melons, will spread over a large area. If space is limited, provide structures so plants can be trained to grow vertically, or consider compact varieties. Growing your own produce also provides the opportunity to experiment with heirloom or unusual varieties that may not otherwise be available in grocery stores. With these you can mix beauty and utility in both vegetable and flower gardens. Leafy greens come in many colors and textures and can be incorporated along borders. When left to bolt, they provide resources to pollinators that in turn facilitates the possibility of saving your own seeds for subsequent plantings. Indeterminate types of tomatoes will grow to 6-12 feet high and can be trained to grow over an arch. These tomatoes

come in a plethora of sizes and colors to provide season-long aesthetics and flowers for the bees.

Rabbiteye blueberries (*Vaccinium virgatum*) are a native shrub originating in the southeastern U.S. and thus well-adapted to our soil and moisture conditions in southern Louisiana. Plants thrive in the same soil conditions suitable for azaleas and rhododendrons and can be trained as hedges in home gardens. They are also the host plant for the southeastern blueberry bee (*Habropoda laboriosa*), which is the most efficient pollinator of this crop. They develop as larvae in underground nests and are active as adults only for a few weeks every year when blueberries are flowering.



Squashes and gourds (*Curcubita* sp.), in addition to being excellent sources of vitamins A and C, are the host plants for a number of native squash bees. Originally specializing on buffalo gourd, as agriculture spread in North America, so did the ranges of these native bees. *Peponapis pruinosa*, among others, are specialists on squash flowers and the most effective pollinators of crops such as zucchini, pumpkins and squash (like butternut, buttercup and spaghetti) because their biology is closely linked to that of their host plants. Females provision their young only with squash pollen, so observe flowers first thing in the morning when flowers are most fertile for these native visitors. Females nest in the ground near host plants, so leave some bare soil nearby to encourage a healthy population, and hearty supply of squash!



Plants belonging to the nightshade (*Solanaceae*) family include tomatoes, tomatillos, peppers, eggplants and potatoes. These plants all require a specific type of pollination, called “buzz pollination,” to release their pollen. This technique can be carried out only by bumble bees and certain other native bee species, in which they rapidly vibrate

their flight muscles when they visit the flower. Although varieties of tomato and pepper do not necessarily need to be pollinated to set fruit, a higher quality harvest is achieved by a healthy pollinator presence.



Substituting fruit trees for other common shade trees is a great option for southern Louisiana residents. Honey bees and numerous other native bees visit blossoming citrus trees for the abundant nectar and pollen. Oranges are particularly good nectar producers in the spring, but lemons and limes will bloom continuously through the year. Grapefruit is also a good nectar producer, but few are grown in Louisiana. Although they can be pests for citrus farmers, the Giant Swallowtail (*Heracles cressphontes*) uses citrus as a host plant, with the larvae resembling bird droppings to deter predators! Pears adapted to our climate and persimmons are other low-maintenance options.



Figs (*Ficus carica*) have a unique pollination syndrome in that their flowers are not visible, but open inside of a hollow stem called the scion. Instead of attracting bees, they rely on a tiny, seemingly insignificant wasp (*Blastophaga psenes*) for the “fruit” to develop. These wasps do not sting and would likely go unnoticed in your garden if not for all the figs on your tree!

Before purchasing or planting any trees, be sure you locate them in a well-draining part of your yard that is not susceptible to frost, since fruit trees can be damaged by freezing temperatures.

Herb gardens are a great way to incorporate lots of floral diversity in relatively small areas, especially since most will grow well in pots. Herb plants have



a wide diversity of flower types, which, in turn, will attract numerous different types of pollinators to your garden, particularly butterflies. Caterpillars like the Black Swallowtail (*Papilio polyxenes*) can use caraway, dill, fennel and parsley as host plants, though adults feed on nectar from many herbs, including chives, Echinacea, marjoram and mint. Bees benefit from flowering basil, lavender, hyssop, borage, rosemary and thyme, among others.



Although it is a common practice to pinch off flowers of herbs to encourage more leaf growth, allowing some to bolt will greatly increase the diversity of beneficial insects in your yard.

Prickly pear cactus, *Opuntia engelmannii*, has a native range that extends east into Louisiana and is a common landscaping plant. Native Americans across the southern part of the country utilized the younger pads (or nopalitos) and fruits as food. While a less common practice among home gardeners today, the flowers of this cactus are an important resource for bees of *Diadasia* and *Melissodes* present in Louisiana and many other pollen generalists. Please note: the spines of prickly pear cactus can cause severe inflammation of the mouth and throat. If you plan on growing this plant for food, research the best ways to safely remove spines before consuming, or plant a spineless cultivar.



Further information about fruit and vegetable gardening and plant varietal selection may be found at the LSU AgCenter website (www.LSUAgCenter.com).

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