



Saint Louis Zoo

Animals Always®

Native Pollinators



Honey bee and bumble bee foraging on a sunflower. Photo © Sarah Greenleaf

About 90 percent of all flowering plants need the help of animals to move pollen from flower to flower for the production of fruits and seeds. Most pollinators, about 200,000 species, are beneficial insects such as bees, flies, beetles, wasps, ants, butterflies, and moths. About 1000 species of pollinators are vertebrates like birds, bats, lizards, and small mammals.

What is Halloween without pumpkins, Thanksgiving without cranberries, and life without chocolate? Of the estimated 1330 crop plants grown worldwide for food, beverages, fibers, condiments, spices, and medicines approximately 75% are pollinated by animals. Insect pollination is critical for the production of many important crops in the United States including alfalfa, almonds, apples, blackberries, blueberries, canola, cherries, cranberries, pears, plums, squash, sunflowers, tomatoes, and watermelons. In the U.S, honey bee and native bee pollination accounts for approximately \$19 billion worth of crop production. Native bees also help maintain plant communities that provide food and shelter for other animals. About 25% of birds and many mammals from grizzly bears to squirrels feed on fruits and seeds that depend upon pollinators to produce.

Native bees are the most important group of pollinators. In fact there are more species of bees in the world than all the mammal and bird species combined. In North America there are around 4000 species of bees. In Missouri there are over 400 species of bees, including 10 species of bumblebees. European honey bees are an exotic species first introduced into the North America in 1622. They are found throughout the US because of our ability to manage these semi-domesticated social invertebrates for their pollination services and honey production.

Pollinators are a vital part of a healthy environment

Native bees are North America's most important group of pollinators.

Butterflies are a beautiful part of our gardens

Many native pollinators are disappearing or declining due to various causes, including loss of habitat, misuse of

pesticides, and disease.

Pollinators are a critical part of profitable agriculture

Native bees can provide all the pollination a crop needs

Native bees are more efficient than honey bees at pollinating some crops

Native bees can buffer against honey bee losses

Help Native Pollinators

The numbers of several species of bees and butterflies have declined across their range. Their loss is due to several factors including: loss of habitat, misuse of pesticides, and disease. You can help these and other native pollinators by planting a pollinator friendly garden. This is an easy hands-on form of conservation that can have an impact on the survival of many species. In a short fact sheet it is not possible to give a complete list of suitable plants for your garden but the following lists should help you to get started on this rewarding conservation project. There are a few simple steps to follow to make a pollinator friendly garden:

- **Use local native plants.** Research suggests native plants are four times more attractive to native pollinators than exotic flowers. Avoid horticultural plants, such as marigolds and roses, bred as “doubles” that provide little or no pollen and nectar for bees and butterflies
- **Choose several colors of flowers and provide a mix of flower shapes to accommodate different species.**
- **Provide a succession of blooming plants throughout the growing season, spring through fall.**
- **Plant flowers in clumps.** It will attract more pollinators than individual scattered plants
- **Plant host plants to feed caterpillars as well as nectar plants for adult butterflies.**
- **Choose non-chemical solutions to insect and plant problems.** Avoid using pesticides and herbicides.
- **Provide nesting habitat for bees, such as bare ground for digger bees and sweat bees and wood and dried plant stems for leaf cutter bees and carpenter bees.**
- **Practice peaceful coexistence.** Bees sometimes choose to nest in inconvenient places. Rather than exterminating them, think of it as an opportunity to see and learn about them up close.

Caterpillar Food: Host Plants

The caterpillars of each species of butterfly have their own, limited menu of plants upon which it will dine. Female butterflies lay their eggs on or near these plants and will be attracted to your garden if you supply their hostplants. To start, grow hostplants for the more common butterflies you see. A few examples of host plants and their butterflies.

Aspen, poplar (<i>Populus</i>)	Many species	Plantain (<i>Plantago</i>)	Buckeye
Carrot, Dill, Parsley (Umbelliferae)	Black swallowtail	Partridge Pea (<i>Cassia</i>)	Cloudless Sulphur
Clover (<i>Trifolium</i>)	Sulphurs, blues	Spicebush (<i>Lindera</i>)	Spicebush Swallowtail
Dutchman's Pipe (<i>Aristolochia</i>)	Pipevine Swallowtail	Tulip Tree (<i>Liriodendron</i>)	Tiger Swallowtail
Grasses and Sedges	Skippers	Violets (<i>Viola</i>)	Fritillaries
Milkweed (<i>Asclepias</i>)	Monarch	Willow (<i>Salix</i>)	Many species

Nectar and Pollen: Bees and Butterflies

Native bees and adult butterflies require nectar and bees also require pollen for their diets. Native plants should be your first choice to help our native pollinators. This list is not exhaustive. Use a wildflower guide or contact local nurseries to find your local species. Bees and butterflies also need to be warm in order to fly. Therefore, nectar and pollen flowers as well as caterpillar host plants should be grown in an open sunny area that is protected from the wind by large shrubs, hedges, fences, or some other windbreak.

Aster (<i>Aster</i>)	Currant (<i>Ribes</i>)	Lead Plant (<i>Amorpha</i>)	Spirea (<i>Spirea</i>)
Bee Balm/Bergamot (<i>Monarda</i>)	Daisies (<i>Chrysanthemum</i>)	Lobelia (<i>Lobelia</i>)	Stonecrop (<i>Sedum</i>)
Black-eyed Susan (<i>Rudbeckia</i>)	Foxglove/Beard Tongue (<i>Penstemon</i>)	Lupine (<i>Lupinus</i>)	Sunflowers (<i>Helianthus</i>)
Blazing Star (<i>Liatris</i>)	Goldenrod (<i>Solidago</i>)	Milkweed (<i>Asclepias</i>)	Virginia Bluebells (<i>Mertensia</i>)
Columbine (<i>Aquilegia</i>)	Jewelweed (<i>Impatiens</i>)	Obedient Plant (<i>Physostegi</i>)	Wild Indigo (<i>Baptisia</i>)
Coneflower (<i>Echinacea</i> , <i>Ratibida</i>)	Joe-pye Weed (<i>Eupatorium</i>)	Sage (<i>Salvia</i>)	Wild Liliac (<i>Ceanothus</i>)

Help the Bumble Bees

Bumble bees are important pollinators of many crops and wild plants. There are 50 species of bumble bees (*Bombus sp.*) found in North America with 11 species found between Illinois and Missouri. Recently Bee researchers have noticed a decline in the abundance of several species of bumble bees, including many that were once very common. You can help scientists at the University of Illinois gather data about bumblebees through their BeeSpotter Program. Send in your photos of bumblebees taken at the Zoo, around St. Louis or in Illinois and help scientists track the health of these important pollinators. To help, sign up at <http://beespotter.mste.uiuc.edu/>.

