

Attracting and Promoting Pollinator Variety in Your Backyard

Pollination & Pollinators

Everywhere on this planet, plants and animals interact with one another and their environment. Indeed, all things depend on these interactions to survive. Another name for this complex network of interactions and organisms is an **ecosystem**. Across the globe, countless ecosystems exist that either mean the survival or destruction of a given organism. One notable such interaction occurs every year in the fields and yards of your local ecosystem: **pollination**.

The importance of **pollinators** in our ecosystems cannot be overstated. Since it is estimated that “about 80% of all flowering plants and over three-quarters of the staple crop plants that feed humankind rely on animal pollinators” (USDA, 2014), these critters are crucial for our survival, as well as the survival of the planet.

Ask anyone about **animal pollinators**, and the one you will probably hear more about is the busy bee. True, the honey bee is the principal crop pollinator worldwide and its pollination services to U.S. crops in 2000 were worth over \$14 billion (Greenleaf & Kremen, 2006). However, the honey bee is not the only animal pollinator out there. For example, other bee species, butterflies, birds, and even bats can act as pollinators as well. Indeed, there exist many kinds of pollinators, each with its own designs and specialties. Because of this natural variety, a good way to promote a healthy ecosystem and garden is to diversify your own backyard with a variety of feeding options.



Niche Complementarity

Every organism has evolved to survive in a given ecosystem. For example, with its thick fur, curved claws, and long snout and tongue, the anteater has evolved to excel at the finding and eating of ants and termites. This ability to hunt these tiny insects where others cannot has created a **niche** in that ecosystem for the anteater. Every organism has a niche to fill, but these niches are not isolated from one another. In fact, the survival of an ecosystem requires that organisms and their niches complement one another. This is **niche complementarity**.

As evidenced by the traits of the many pollinators out there, plants require a diversification of pollinators in their ecosystems to survive. This is because pollinators have evolved to feed on and spread the pollen of certain flower types. For example, with its bright red petals and long tubular design, the cardinal flower is a perfect match for hummingbirds, who are attracted to red and whose long, slender bills and tongues can reach the nectar deep inside this plant's long flower tube. Honey bees, however, with their inability to see the color red, would not be attracted to these flowers, and with their short, bulky bodies, would be unable to feed at and spread the pollen of this plant. They require something more like the sunflower with its broad landing area and yellow color, which honey bees seek out.

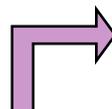
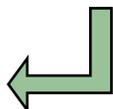
This sort of complementarity is always occurring in an ecosystem. Without it, the ecosystem would likely fail.

Wisconsin Pollinators

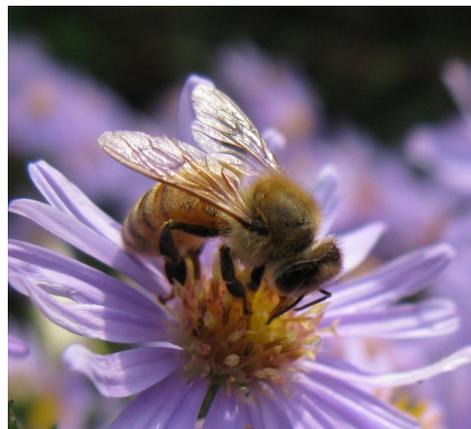
POLLINATOR	BODY CHARACTERISTICS	FLOWER TRAITS	TYPICAL FLOWER
Bees (Especially bumble bees & honey bees)	⇒ Fuzzy, hairy bodies that attract and hold pollen well ⇒ Large bodies that require ample landing areas ⇒ Unable to see red; able to see ultraviolet	⇒ Open during day ⇒ Brightly colored: blue and/or yellow ⇒ Sweet or minty aroma, plentiful nectar, and flat landing areas ⇒ Visible markings (only seen in ultraviolet) to guide to flowers	Sunflower
Hummingbirds	⇒ Long, slender bills and long, grooved tongues ⇒ Poor sense of smell ⇒ Great vision	⇒ Open during the day ⇒ Brightly colored, especially red ⇒ Long and tubular with plentiful nectar hidden deep	Foxglove
Butterflies	⇒ Poor sense of smell ⇒ Good vision (can see red unlike bees) ⇒ Large bodies that require ample landing areas ⇒ Long tongue	⇒ Open during day ⇒ Brightly colored: red, yellow, or orange ⇒ Flat and clustered (for landing) with plentiful, deeply hidden nectar for long tongue	Magnolia
Moths	⇒ Large bodies that require ample landing areas ⇒ Long tongue	⇒ Open during late afternoon or night ⇒ Fragrant ⇒ White or dull-colored ⇒ Flat and clustered (for landing) with plentiful, deeply hidden nectar for long tongue	Morning glory
Flies (Especially flower flies & blow flies)	⇒ Short mouths unspecialized for feeding at flowers	⇒ Pale, dull-colored ⇒ Strong putrid odors similar to carrion or dung ⇒ Open with easily accessible nectar	Red trillium
Beetles	⇒ Rely heavily on scent to find flowers	⇒ Open during day ⇒ Usually white or dull-colored ⇒ Strong-smelling with exposed sexual organs	Goldenrod



Note how the long tongue (proboscis) of the hummingbird hawk-mouth and the long bill of the hummingbird allow each to draw nectar from flowers with hidden nectar.



Conversely, note that the honey bee's bulkier body requires a large flower on which to land and draw more readily available nectar from.



Images retrieved from:

Honey bee at aster: <http://www.fotopedia.com/items/flickr-1451144996>

Hummingbird hawk-moth: <http://www.sevcikphoto.com/dlouhozobka-Macroglossum-stellatarum-2.jpg.html>

Hummingbird at bergamot: <http://flowerhillfarm.blogspot.com/2011/04/birds-in-review-part-xxxii-bird-parade.html>

Create niches and cater to variety

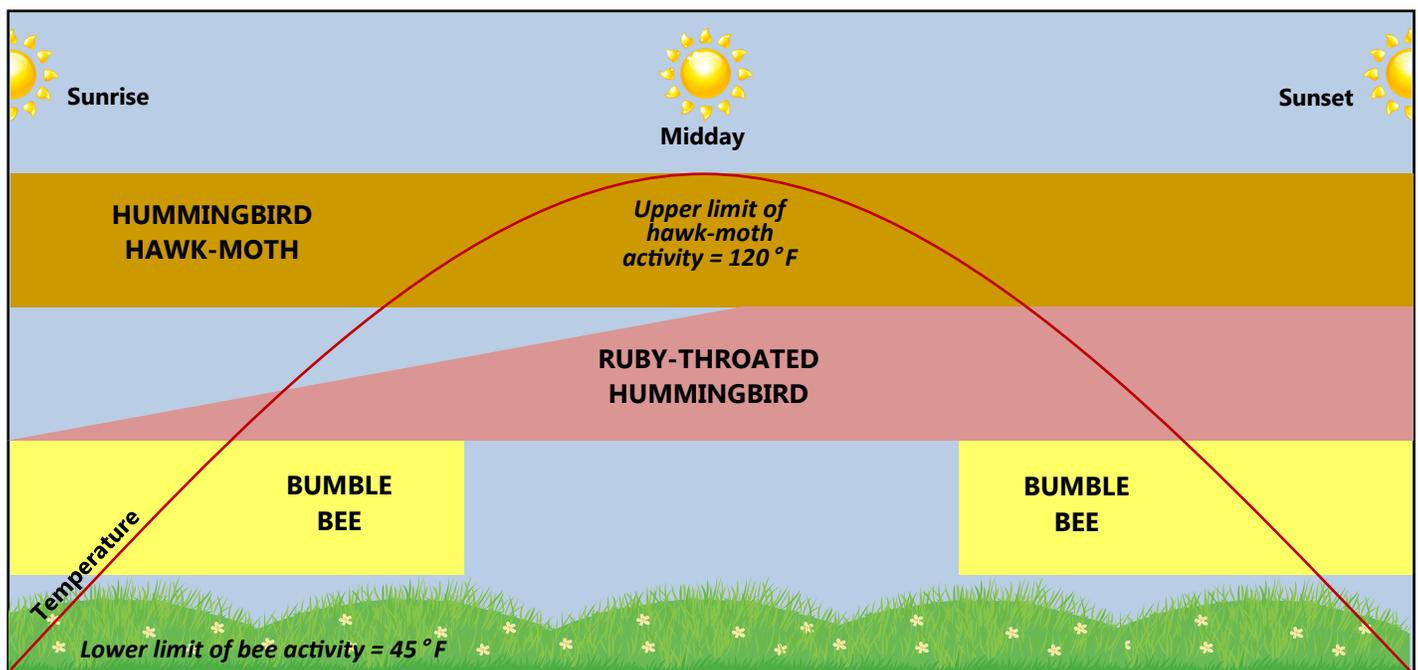
Pollinators are vital to their ecosystems and ours. Whenever altering your landscape, such as adding or removing plants or cutting down old trees, consider how it will affect local pollinators. You may be reducing their opportunities to feed and nest, thereby reducing their chances at survival. Remember that the many types of pollinators all fill certain niches, and helping create those niches where we can will benefit them and us.

As a gardener or just someone with a yard, you can achieve a lot for pollinators. By providing food and shelter to these valuable creatures, you can help ensure their survival and continued roles in our ecosystems. This will further help ensure our survival as well.

TIPS FOR CREATING POLLINATOR NICHES IN YOUR LANDSCAPE

- ◆ **Grow a variety of plants**
Maximize the time of day and year of blooming flowers to provide food for as many pollinator types as possible.
- ◆ **Avoid pesticides if possible**
Many "pests" are pollinators.
- ◆ **Avoid sterile hybrids**
Without pollen or nectar, these flowers do little for pollinators.
- ◆ **Create areas of pollinator interest**
Hummingbird feeders and overripe fruit for butterflies will keep pollinators interested in your garden and yard.
- ◆ **Maintain locations for pollinator habitats**
Leave dead limbs for bees to build nests on; also, grow plants that caterpillars favor in order to provide a home to future butterflies and moths.

DIFFERENT POLLINATORS = DIFFERENT ACTIVE CYCLES



Ruby-throated hummingbird

- ◇ Active sunrise to sunset but tends to forage more in the late afternoon with higher temperatures.

Hummingbird hawk-moth

- ◇ Active all-day long, even in bright sunlight and very high temperatures.

Bumble bee

- ◇ Tends to be active in the morning and late afternoon when temperatures are not too high.

Due to these differences in when pollinators are active, it is important to add variety to your garden to promote ALL pollinators.

Wisconsin Plants & Pollinators

Common Zone 4 plants	Bloom period (year)	Color	Flower shape	Flowering height (feet)	Pollinators
Plum tree (<i>Prunus</i> spp.)	April	White	Large, wide petals	16-39	Bees
Apple tree (<i>Malus</i> spp.)	April-May	White, pink, red	Large, wide petals	13-39	Bees, flies
Violet (<i>Viola</i> spp.)	April-June	Blue, purple, red, white, yellow	Large, wide petals	½-1	Bees
Hardy geranium (<i>Geranium</i> spp.)	April-August	Blue, pink, purple, red, white	Large, wide petals	½-1½	Bees
Alpine aster (<i>Aster alpinus</i>)	May-June	Purple, blue, pink	Large center; long, thin petals	½-1	Bees, butterflies
Columbine (<i>Aquilegia</i> spp.)	May-July	Many	Small, bell-shaped	1-3	Butterflies, moths
Butterfly weed (<i>Asclepias tuberosa</i>)	June-August	Orange	Small, clustered flowers	2-3	Bees, butterflies, hummingbirds
Evening primrose (<i>Oenothera missouriensis</i>)	June-September	Yellow	Large, wide petals	¾-1½	Moths
Daisy fleabane (<i>Erigeron speciosus</i>)	June-November	Purple, pink	Large center; long, thin petals	1½-2½	Bees, butterflies, beetles, flies, moths
Golden century (<i>Centaurea macrocephala</i>)	July	Yellow	Thistle-like	3-4	Bees, butterflies, beetles, flies, moths
Black-eyed Susan (<i>Rudbeckia fulgida</i>)	July-September	Yellow with black centers	Large center; long, thin petals	2-3	Bees, flies
Cardinal flower (<i>Lobelia cardinalis</i>)	July-September	Red	Tubular	2-4	Hummingbirds
Mist flower (<i>Eupatorium coelestinum</i>)	September-October	Blue, white	Long, strand-like petals	2	Bees, butterflies

Adapted from "Growing Perennials" (No. 556) by North Central Regional Extension: <http://migarden.msu.edu/uploads/files/ncr556.pdf>

Sources

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