



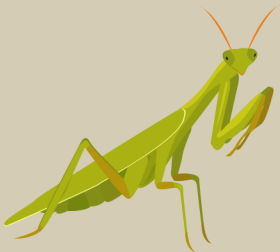
INSECTS



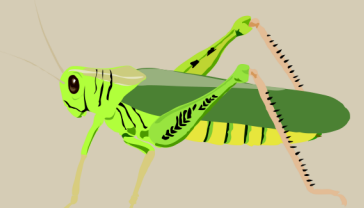
The Ecosystem Services of Insects



The fact is, life depends on insects. Insects provide crucial pollination benefits, as well as being a key food source for most birds. Doug Tallamy writes in his book, *Nature's Best Hope*, that 96% of North America's terrestrial bird species rear their young on insects, rather than on seeds or berries. Some birds, such as woodpeckers, depend on insects all year round. So if you want birds to call your garden home, you need to give insects – often dismissed as irritating pests – some thought.



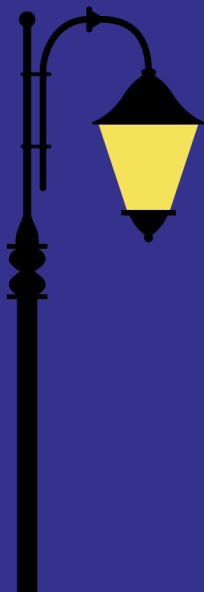
The two most important groups of insects are (1), caterpillars, the dominant food source for birds, and (2), pollinators (bees, butterflies, etc.). The following pages will give you guidance on how to support these two groups of insects in your backyard.



Activity #1: Turn off your nighttime lights

One of the most important things you can do for insects in your backyard is to turn off your nighttime lights. Many flying insects are attracted to streetlights, hovering around them until they succumb to exhaustion. Attraction to artificial lights kills millions of birds each year as well.

For those worried about security, switching your outdoor lightbulbs to yellow or red (since white and blue light is especially harmful to insects and birds) is a good alternative to turning them off. You can get bug-friendly yellow lights at Home Depot for any outdoor fixture.



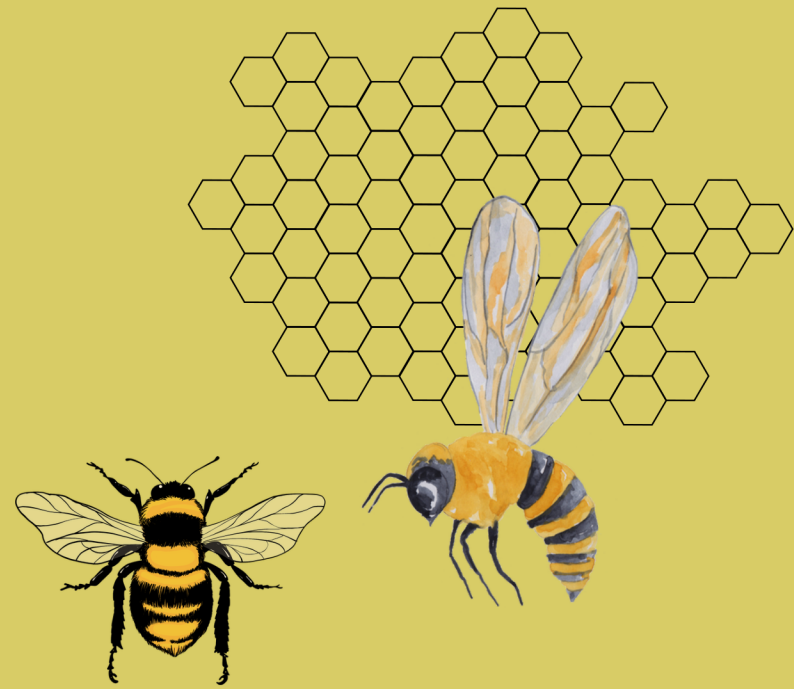
If you are a Philadelphia resident, please sign our petition requesting Philly's Commissioner of Streets to switch the city's streetlights to yellow or red which would save insects and birds:
<https://tinyurl.com/ycknwawt>

Activity #2: Protect bees in your garden

Honeybees pollinate 80% of all flowering plants, though many colonies are collapsing. Bumblebees are also critical pollinators, but their populations have dropped by 90% in the last two decades. We, as well as all other plants and animals, are dependent on bees for our survival. So let's treat them better.

The first thing to do for bees is to NEVER spray pesticides on your lawn and especially not on your pollinator garden. Pesticides and herbicides are extremely harmful to bees and other insects.

To further help bees, you can install a bee house (also called a bee hotel) to host a native solitary bee colony. The most important thing about installing your bee house is placing it in full sun. A good place to install it is a fence post. You can attract them to your bee house by planting native pollinator plants like those listed on the Monarch Defenders website (www.monarchdefenders.org).



Mow your lawn less frequently and be part of the No Mow May initiative: agree to not mow for the month of May in order to provide habitat for pollinators. Bees benefit from clover and other wildflowers growing in the grass.

Activity #3: Provide plants for pollinators



The majority of people's gardens give little or no value to insects, and thus very little value to the food chain. Insects have specialized over millions of years to eat particular plants (such as the monarch caterpillar only eating milkweed), and so most non-native plants and flowers that are common in gardens provide little benefit to insects.

So let's ditch those hostas and hyacinths and instead fill our gardens with the plants that are most valuable to biodiversity (which can be just as beautiful). The following pages are a list of some of the plants necessary to providing habitat for insects and pollinators. These plants are native to the Eastern U.S. (primarily the Mid-Atlantic region). Plants native to other regions are listed on the Monarch Defenders webpage as well as more information on how to plan your garden:

<https://www.monarchdefenders.org/microhabitats>.

Nectar plants for pollinators native to the Eastern U.S.

Name of plant	Wildlife species	Sun requirements	Height (feet)
Giant goldenrod (<i>Solidago gigantea</i>)	115 caterpillars use goldenrods as a host plant, also attracts bees, butterflies, and other pollinators for nectar	Full to moderate sun	Up to 6'
Showy goldenrod (<i>Solidago speciosa</i>)	Same as giant goldenrod	Full sun	4'
Common milkweed (<i>Asclepias syriaca</i>)	Monarchs (in addition to milkweed beetles) use this plant as an essential host, attracts butterflies, bees, and other pollinators for nectar	Full sun	5'
Swamp milkweed (<i>A. incarnata</i>)	Same as common and butterfly milkweed	Full sun to partial shade	3 - 5'
Butterfly weed (<i>A. tuberosa</i>)	Same as common and swamp milkweed	Full sun	1 ½ - 2'
New England aster (<i>Symphotrichum novae-angliae</i>)	Asters are a host plant to 112 caterpillar species and are an important nectar source for migrating monarchs in early fall	Full to partial sun	6'
Cardinal flower (<i>Lobelia cardinalis</i>)	Hummingbirds love this plant as a nectar source	Full sun to partial shade	3 - 6'
Wild blue phlox (<i>Phlox divaricata</i>)	Attracts butterflies including swallowtails and blues for nectar	Partial shade	½ - 1'
Virginia bluebell (<i>Mertensia virginica</i>)	Attracts skippers and other butterflies as well as many moths for nectar	Partial to full shade	1 - 2'
Evening primrose (<i>Oenothera biennis</i>)	Many moths use it as a host as well as a nectar	Full sun to light shade	3 - 5'

	source; seeds are eaten by many songbirds		
Joe-pye weed (<i>Eutrochium</i> genus)	Attracts all types of bees and butterflies (including monarchs, swallowtails, and skippers) for nectar	Full to partial sun	Most Joe-pye weeds are very tall, reaching up to 8,' though some varieties are only around 4' tall
Common boneset (<i>Eupatorium perfoliatum</i>)	Host plant for moth and butterfly caterpillars; finches and juncos eat seeds	Full sun to partial shade	2 - 4'
Prairie blazing star (<i>Liatris pycnostachya</i>)	Attracts numerous pollinators; monarchs love the nectar	Full sun	2 - 4'
Blue mistflower (<i>Conoclinium coelestinum</i>)	Great source of late summer nectar though it has weedy attributes	Light sun	1 - 2'
Purple coneflower (<i>Echinacea purpurea</i>)	Attracts all types of butterflies for nectar; goldfinches and other birds love the seeds	Full to partial sun	2 - 4'
Black-eyed susan	A prime seed source for many songbirds and finches; butterflies will also use it for nectar	Full sun	Most varieties are less than 3'
Brown-eyed susan	Provides nectar to bees and butterflies; birds may eat seeds	Full sun to partial shade: can tolerate more shade than black-eyed susans	2 - 5'
Lanceleaf coreopsis (<i>Coreopsis lanceolata</i>)	Provides nectar to bees and butterflies; lots of songbirds such as cardinals and chickadees eat seeds	Full sun	1 - 2'
Bee balm (<i>Monarda</i> genus)	Many pollinators, especially hummingbirds and bees, love the nectar	Full to partial sun	4'