



BACKYARD HABITAT

City of Goshen

TABLE OF CONTENTS

Introduction	3
What Makes a Good Habitat?	4
Food	5
Water	6
Shelter	7
Native, Non-native, and Invasive Plants.....	8
Water Conservation	Error! Bookmark not defined.
Chemical Use	12
Predation and Unexpected Visitors	13
Endangered Species and Species of Concern	14
Native Plant Chart	21
Further Resources	23

INTRODUCTION

The City of Goshen's Backyard Habitat Program was created to encourage residents and businesses to create intentional native and natural spaces. By taking part in this program, you can help increase the city's biodiversity, contribute to conservation and restoration efforts, and help create wildlife habitat corridors throughout your community.

There are four major components to an animal's habitat: food, shelter, water, and space. Having a variety of these things builds the resilience of that ecosystem and contributes to higher biodiversity.



Ironweed. Photo by Melanie Helmuth.

Biodiversity is a term describing an ecosystem that has a wide variety of species. Biodiversity is important when looking at a habitat because high biodiversity indicates a healthy ecosystem. Biodiversity can be achieved through planting multiple native species, providing food, shelter, and water for animals and insects, and making sure there is enough space for diversity to occur naturally.

Native plants are essential for a biodiverse ecosystem. A list of plants that are native to Indiana is at the end of this guide to help you choose what fits your yard. There are native plants for every soil type, sun exposure, and landscaping need - this guide will explore some of the aesthetic qualities and environmental value these plants have.

Industrialization and over-development have led to the degradation, and often eradication, of many of Indiana's ecosystems. Not only does this mean there is less diversity in plants, but it also means that the animals and insects that rely on those plants become stranded in habitat 'islands.' One of the ways that Goshen as a city can start to address this problem is by creating habitat corridors - places where islands are connected by restored habitat space, allowing wildlife to move in between.

By creating native habitat space in your yard, you can help create these corridors, making Goshen a more biodiverse city, and helping wildlife by providing them with the resources that they need.



An example of what a backyard habitat can look like.
Photo by Theresa Sailor.

WHAT MAKES A GOOD HABITAT?

Resilient ecosystems support more species, have higher biodiversity, and are more self-sustaining - requiring less maintenance overall. Below are some things that contribute to a strong, resilient habitat, as well as what you need to have to qualify for the Backyard Habitat program.

- **Food and Water:** 2 sources of food and one source of water
Having at least two sources of food and at least one source of water is a good start to a resilient habitat space.
- **Shelter:** two areas of shelter
Having at least two areas of shelter provides safe places for wildlife to sleep, hide from predators, and raise young.
- **Space:** at least 50 square feet
While any native landscaping is beneficial for wildlife, larger areas that can sustain multiple native species and areas for wildlife will support biodiversity and help create habitat corridors.

An ideal starting space, if you have room for it, is an area of about 50 square feet. This will make it possible for you to plant multiple native plant species, create some denser and sparser areas, and provide plenty of shelter. If you spread this space out in multiple areas in your yard, make sure that there is a connection between the spaces to keep habitat corridors open.

It's also important, even if you have a smaller habitat space, that native plants have others of their kind near them to cross-pollinate. Keep this in mind while planning your habitat space.

- **Biodiversity:** at least five different types of species

You can contribute to the biodiversity of your backyard habitat by planting a variety of species. You can do this not only by planting different species, but also by considering the diversity within those species: how can you create diversity in plant height? What are the different food sources that these plants can provide? How can you adapt your landscaping to fit drier or wetter areas?



Mayflies are a species that can serve as an indicator of a healthy ecosystem. Photo by Lee Bergey.

- **Sustainable Practices:** regularly do at least one of the sustainable practices listed in this guide. Towards the end of this guide, there is a section on sustainable practices to provide some

ideas on what other actions you can take to keep your soil and habitats healthy. Aside from planting native plants, everyday practices like watering, using herbicides, or having pets outside can affect how welcoming your habitat is to wildlife.

- **Invasive Species:** have no invasive species in your Backyard Habitat
In this guide, there is a section on invasive plants. Because invasive plants degrade biodiversity, it's important not to have them in your yard to compete with your native species. In this guide, there is also a list of a few common invasive species and some native alternatives.

FOOD

The term *food web* describes a system of interlocking food chains, each of which is dependent on the others to remain whole. Having multiple food sources ensures that if one year, one source fails, there are still other species that wildlife can use. Below are some examples of food sources that you can have in your yard.

- **Seeds**
 - Bird or squirrel feeders - these can be particularly helpful in the winter when other food sources are dormant
 - Suet cages

-
- Trees, shrubs, and brambles
 - Leaving up dead or dormant plants can provide seeds in colder months - especially for birds
 - Nectar
 - Flowering plants
 - Nectar feeders can be a way to provide extra nectar to hummingbirds and other pollinators, like wasps
 - Fruit
 - Fruiting trees, shrubs, and brambles
 - Putting fruit outside or in open compost
 - Pollen
 - Flowering plants provide pollen to bees, butterflies, and other pollinators

WATER



Swamp Milkweed with a Monarch Butterfly. Photo by Melanie Helmuth.

Even if you live by a pond, creek, or other water source, it may be too deep or turbulent to provide water to smaller wildlife, like bees. There are several ways to create smaller water sources or supplement existing ones.

- Ponds
 - If you have a pond or other water source in your yard already, make sure there are native plants along it to provide food and shelter near that water
- Puddling areas
 - Puddling areas are shallow basins - these can be small, lined pools, birdbaths, shallow containers, etc. that collect rainwater or can be manually filled
 - Adding small rocks and pebbles can give wildlife a place to sit and access the water
- Birdbaths
 - Shallow birdbaths appeal to songbirds and other small animals
 - Adding small stones will give birds and small animals a place to sit
 - Birdbaths raised on stands are preferable, as this allows the birds to see predators
- Native plants

-
- Native plants can hold water - petals, seed casings, etc. collect water after the rain, and this is then accessible to pollinators and other wildlife

SHELTER

Having space where animals can rest, hide from predators, and raise young is essential for welcoming wildlife into your yard. While even just planting small shrubs and native plants creates shelter, there are a lot of ways that you can create additional shelter spaces, and this will encourage a wider diversity of wildlife in your backyard.



A Woodland Box Turtle. Photo by Blaine Bergey.

- Insect hotels
 - You can make or buy houses meant for insects - butterflies and solitary bees and wasps, like mason bees, will take advantage of these houses
- Dead/Dormant plants
 - Insects and smaller animals can hide in dead or dormant plants - leaving these plants up in the colder months can sometimes be the only source of shelter that an animal may have
- Leaf litter
 - Leaving leaf litter in your yard preserves space for amphibians, snails, and other wildlife that require moisture
 - Woodland Box Turtles will hide in leaf litter
 - You can leave leaf litter across your yard, or rake them into small piles
- Bat houses
 - Hanging a bat house on a pole or tree encourages bats to roost there; a healthy part of an ecosystem
- Birdhouses
 - Birdhouses can be put on poles or trees and will provide a space for birds to raise their young
 - Be sure to research what types of birdhouses attract the types of birds that you're trying to support - things like entry hole size and diameter can determine what species of bird will use the house
 - Birdhouses shouldn't have a perch - while the perch may be helpful for the birds, it also provides a place for predators to sit. Birds can enter a

house fine without a perch, and predators will have a harder time reaching in

- Logs and old wood
 - Leaving or adding bits of old wood or small logs provides shelter space for small rodents and insects, and can also double as food for animals that eat detritus
 - Decaying wood is an effective way to encourage the growth of mushrooms, organisms that are important to the life cycles of an ecosystem, and serve as a food source for animals like the Woodland Box Turtle
- Conifers
 - Conifer trees provide wildlife shelter from predators, as well as from extreme high or low temperatures

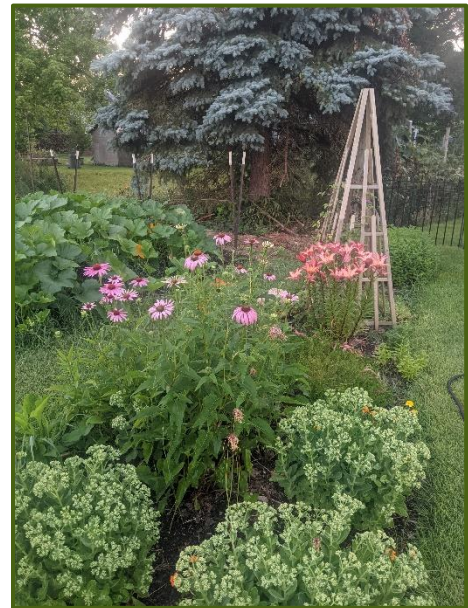
NATIVE, NON-NATIVE, AND INVASIVE PLANTS

Terms like ‘native,’ ‘non-native,’ and ‘invasive’ are often brought up in conversations around natural habitat space. What exactly do these terms mean, and how are they different?

Native refers to plants that evolved in the region that they’re found in. Because a native plant evolved alongside the other plants and animals in that habitat, it is balanced within that ecosystem and kept in check by its neighbors. It competes equally for resources and has enough competition to keep it from choking out other plants. Native plants also provide necessary foods to the wildlife that coevolved with them.

Non-native refers to plants that aren’t native to the region, but have been introduced to the area by people. A species being non-native doesn’t automatically make it invasive: plenty of non-native species grow in balance with the rest of the ecosystem and don’t outcompete other plants. Many

animals can eat non-native and native plants.



An example of what a backyard habitat can look like. Photo by Melanie Helmuth.

When a non-native species begins to outcompete other plants, it becomes **invasive**. Because invasive species take over, they degrade the ecosystem’s biodiversity. This is when plants become a concern. If you have an invasive plant in your yard, it is best to

remove it and replace it with a native plant to create a healthier ecosystem. Unfortunately, invasive species are often sold as landscaping plants, so a lot of people have them in their yards. Invasive plants sometimes have positive sides to them - they are attractive, they do well in drought, or they grow quickly; however, there are native plants that do the same things.

Below are a few common invasive species, and some alternatives if you have these plants in your yard.

Invasive species: Butterfly Bush (*Buddleja davidii*)

Butterfly Bush is a non-native invasive species that grows and spreads quickly, outcompeting the native plants around it. It is a bush often planted for its bright purple flowers, its drought tolerance, and the idea that it attracts pollinators. Unfortunately, while attracting some pollinators, there are no native caterpillars that eat Butterfly Bush.

Native alternatives: American Hazelnut (*Corylus americana*), Purple Coneflower (*Echinacea purpurea*), and Smooth Blue Aster (*Symphyotrichum laeve*)

The American Hazelnut is a shrub that will get to a comparable size to the Butterfly Bush and attracts several native pollinators. The hazelnuts are edible, and the shrub also acts as a good habitat for birds and small mammals.



Purple Coneflowers. Photo by Theresa Sailor.

Purple Coneflower is a native magenta flower that attracts many pollinators, including native butterflies like Monarchs. Blooming from June to August, these plants are quite tolerant of drought and can grow quite tall. Smooth Blue Aster is another good alternative to Butterfly Bush and is a smaller, purple flower with a yellow center. This flower blooms later in the season, helping pollinators in the late fall.

Invasive species: Purple Loosestrife (*Lythrum salicaria*)

Purple Loosestrife is an invasive that's often chosen for its purple spikes of flowers and its attractiveness to bees. This invasive spreads quickly and forms single-species stands that eradicate diversity.

Native alternatives: Swamp Milkweed (*Asclepias incarnata*), Tall Blazing Star (*Liatris aspera*), and Blue Vervain (*Verbena hastata*)

Swamp Milkweed is a taller plant that has a pink flower, and its attractiveness to pollinators makes it a suitable alternative to Purple Loosestrife. Like the invasive plant, it grows in wet or dry soils and thrives in clay or sandy soils.

Tall Blazing Star has spikes of flowers like Purple Loosestrife and can grow up to six feet. This species attracts various pollinators, birds, and other small animals.

Blue Vervain is similar, having clumped, tall flowers that extend above the foliage. These flowers attract a variety of bees and butterflies and tend to do better in wet soils.

Invasive species: English Ivy (*Hedera helix*)

English Ivy is a common ornamental vine planted in the US. It's a plant that threatens not just the understory, but can kill trees as well - spreading fast, it adds weight to plants, blocks sunlight, and can also carry a pathogen that affects native trees.

Native alternatives: Creeping Dogwood (*Cornus canadensis*), Sensitive Fern (*Onoclea sensibilis*), and Ostrich Fern (Genus *Matteuccia*)

Creeping Dogwood is a native vine that is a suitable alternative to English Ivy, crawling across the ground, but not climbing trees. Never reaching above six inches, this plant makes good ground cover in shady areas, attracting pollinators with its small, white flowers. The Sensitive Fern is similar - a fern that stays close to the ground and grows in shady areas. The Ostrich fern is a bit taller, reaching about three feet. While all three of these native species are non-invasive, they can still spread quickly like English Ivy when they're planted in the right conditions.

Invasive species: Winged Burning Bush (*Euonymus alatus*)

Winged Burning Bush is an invasive plant that turns bright red in the fall. It is highly tolerant of extreme temperatures, sun and shade exposure, and various soil conditions. It quickly spreads through seed and is a hardy plant that is difficult to remove.

Native alternatives: Fragrant Sumac (*Rhus aromatica*), Northern Spicebush (*Lindera benzoin*), and Eastern Wahoo (*Euonymus atropurpureus*)

Fragrant Sumac is a shrub that also turns bright red and yellow in the fall, growing to a comparable size. Butterflies and Luna Moths are attracted to this plant, and it provides cover for smaller animals.

Northern Spicebush is another shrub, with a spicy citrus smell. It grows in moist woodlands and on the edges of forests. The shrub turns yellow and orange in the fall, growing red fruits that feed a variety of bird species. This species grows and spreads quite quickly.

The Eastern Wahoo is related to the Winged Burning Bush; this species, however, is native to the United States. A tall shrub with unique pink-purple flowers, the Eastern Wahoo grows in wooded areas and along meadows, getting taller than burning bush.

WATER CONSERVATION

Conserving water is important - as is ensuring that contaminants stay out of our waterways. There are several ways that you can help to conserve and protect clean water.

- **Watering:** watering by hand is an effective way to reduce your water usage - rather than using a watering system, like a sprinkler, water the plants that need it by hand with a hose or watering can. Native prairie plants need little water, so by planting these natives, you can reduce the amount that you will need to water.
- **Reduce lawn grass and impermeable surfaces:** lawn grass requires a lot of water and doesn't allow water to permeate the surface as easily as native plantings or rain gardens. Impermeable surfaces are surfaces like macadam or concrete, where water can't pass through. These areas don't allow water to soak back down into the groundwater, instead flowing towards storm drains or other bodies of water, often carrying contaminants with it. Impermeable surfaces also contribute to flooding issues. You can reduce impermeable surfaces by removing these areas if possible, or by covering parts of them with planters to catch some of the water. Planting rain gardens or other native plantings will reduce lawn grass and help water soak back into the ground.



Great Plains Ladies Tresses is a rare and endangered orchid in Indiana. Photo by Lee Bergey.

- Rain barrels: collecting excess rainwater in a barrel not only reduces the amount of water runoff from your buildings, but also supplies you with water for your yard.



An example of a rain garden. Photo by Theresa Sailor.

- Rain gardens: if you have a lower area of your yard, it could be a perfect place to plant a rain garden. Putting plants that like wetter soil in these areas will help them thrive, create habitat, and help the standing water that flows into these lower areas permeate back into the groundwater. Rain gardens reduce runoff and flooding, filter contaminants out of the water before it reaches the aquifer, and create good habitat for birds,

pollinators, and other wildlife. For ideas of good plants to put in these low, wet areas, refer to the native plant chart at the end of this guide.

- Planting buffers around bodies of water helps filter any runoff before it reaches the open water source. There are other benefits to riparian buffers, too - they can provide food and shelter to wildlife.

CHEMICAL USE

Herbicides and pesticides are often used to keep your plants healthy and free of competitors - especially if you're trying to remove invasive plants, these chemicals can be helpful. However, there are a lot of downsides to these substances, including soil and water contamination.

Along with contaminating the soil and water, herbicides and pesticides can be harmful to human and animal health. Wildlife can be extremely sensitive to herbicides and pesticides - Woodland Box Turtles, for example, can become sick from these chemicals, even if they are just in the soil. Some



Monarch caterpillars, like many insects, are sensitive to chemicals like herbicides. Photo by Lee Bergey

types of herbicides and pesticides remain in the soil long after the chemicals are finished being used.

If you have a healthy, diverse ecosystem, there's a high chance that you will not need to use herbicides or pesticides. In a balanced ecosystem, insects and plants are kept in check, and their populations will not get out of control. If there is a situation where you must use chemicals - for example, an invasive plant - research the chemical before use, use it with caution, and consult a professional with any questions.

PREDATION AND UNEXPECTED VISITORS

Some of the biggest predators of wildlife are domesticated animals like cats and dogs. If you have pets, make sure that you are aware of how they interact with the outside environment, keeping them away from birdhouses, nesting areas, and food/water sources. If possible, keeping pets completely out of habitat areas while unsupervised will make wildlife feel safest, and may keep your pets safe as well.

While caring for your habitat areas, you may notice unwanted or unexpected visitors. Invasive plants, plants that spread too quickly, or plants that you didn't plant or seed are all examples of things you may notice. Often, plants that you don't expect are a good sign that the ecosystem is doing well, as even species that you didn't plant can thrive. 'Weeds' may pop up and will most likely be kept in balance with the rest of the ecosystem. Invasive plants, when caught early enough, can be kept under control relatively easily.



A beautiful Garden Spider - these spiders can grow quite big but are harmless and beneficial to the ecosystem. Photo by Lee Bergey

Certain insects are also often unexpected. For example, if you plant milkweed to attract Monarchs, you may not expect some of the other insects that use milkweed as a host plant. Aphids and Milkweed Bugs (also known as Box Elders) are both insects that use milkweed, and their populations can grow quite large quite quickly. Typically, this is not something to worry about, as other natural predators will keep populations in check, but consult a professional if you worry about it getting out of control. Stay curious about the creatures that you find in your yard and on your plants, and pay attention to the

diversity of animals that rely on each plant - they are the markers of a healthy ecosystem.

Mushrooms are another example of something that you may not expect to see in your yard. Mushrooms do best in good soils in healthy ecosystems, so if you have this sign of decomposition in your yard, it's a sign that your habitats are healthy.

Decomposition is a necessary step in a life cycle. Mushrooms also serve as a food source for wildlife. You can encourage mushrooms and other decomposers by leaving out old pieces of wood, especially in wetter, shadier areas.

ENDANGERED SPECIES AND SPECIES OF CONCERN

Elkhart County is home to quite a few species that are endangered, threatened, or otherwise of special concern. Below are a few of these species, their habitats, and what you plant or do in your yard if you are interested in helping these species. For a more complete list of species, refer to the DNR link at the end of this document.

Common Name: Little Virgin Tiger Moth

Scientific Name: *Apantesis virguncula*

Status: State rare

Habitat: Forested prairie edges, wetlands, fens, and bogs

The Little Virgin Tiger Moth has gray and cream-colored striping on the forewings, with yellow-orange coloration on the hindwings. The hindwings have gray spotting to match the line of gray on the abdomen. The thorax is cream-colored with three streaks of black, similar to the head. Caterpillars are gray/black with spines.

An uncommon to rare species in Indiana, the Little Virgin Tiger Moth has a small wingspan of 1.35-4.6 millimeters. As a caterpillar, it feeds on smaller plants, and as a moth, its flight spans from June to August.

This moth can be found in wetter, shady areas, and needs low-growing plants. Its preferred plants are those in the aster family (Asteraceae). In your yard, make sure there is some wooded shade, like bushes, shrubs, and small trees, along with some more open areas of low-growing asters.

To encourage this species, plant these native species: Heart-Leaved Plantain, New England Aster, Smooth Blue Aster, Woodland Sunflower, and other native asters.

Common Name: Regal Fern Borer

Scientific Name: *Papaipema speciosissima*

Status: State Threatened

Habitat: Wetlands, wet prairie, and moist woods

The Regal Fern Borer is a species of small, tan moth. The forewings have brown bands: a thick band around the edge, with a thinner band above it. The forewings have a tan spot on the tips with two to three small white lines running parallel across the middle of the wing. The hindwings are tan with darker brown veins, and the thorax and abdomen are tan and fuzzy. The wingspan is 1.8-2.0 inches, and their flight is in September and October.

This moth can be found in wetter, shaded areas, where the Regal and Cinnamon Ferns grow. The larvae feed solely off these fern species' roots. To encourage this species, your yard should have these ferns, which grow well in moist soil under partial or full shade.

To encourage this species, plant these native species: Royal Fern and Cinnamon Fern.

Common Name: Sedge Moths

Scientific Name: Subfamily *Glypjipterigiae*

Status: Variable

Habitat: Wetlands, fens, prairies, woodlands



New England Asters. Photo by Lee Bergey

Sedge Moths are a subfamily of moths found in a diversity of habitats. These slender moths have long forewings and frayed hindwings. Many species have metallic wings or markings. Their wingspans range anywhere from 7-16 millimeters.



Sedges are a unique type of plant with angular stems. Photo by Lee Bergey.

The larvae of these moths bore into the stems of sedges, rushes, and grasses. The moths' namesake, sedges, are a genus of grass-like plants that can grow in most conditions. Sedges can be identified from grasses and rushes by their stems - sedges have edges. Many sedges have triangular stems and often have unique, spiky seed heads.

In your yard, planting species like sedges can help build a proper habitat for this subfamily of moths. Because sedges are so diverse and adapted to so many environments, there are species that will fit any yard perfectly.

To encourage this species, plant these native species: Mace Sedge, Tussock Sedge, Fox Sedge, Pennsylvania Sedge, and other native sedge species.

Common Name: Woodland Box Turtle (formerly Eastern Box Turtle)

Scientific Name: *Terrapene carolina carolina*



A Woodland Box Turtle. Photo by Eric Strader.

Status: Species of state concern

Habitat: Woodlands and prairie meadows

The Woodland Box Turtle is the only terrestrial turtle in Indiana, living its entire life out of the water. This turtle has a brown or black shell with bright yellow-orange patterning. This patterning extends to the underside, legs, neck, and head. The eyes are bright orange with a black pupil. The shell is hinged, and the turtle has a pointed 'beak' that it uses when eating.

Woodland Box Turtles can grow up to six inches in length, and are omnivorous, eating berries, seeds, roots, flowers, fish, eggs, amphibians, insects, slugs, earthworms, and some mushrooms. Providing some of these things,

along with a ground-level water source, like a shallow dish of water, can help these turtles.

Along with food, Woodland Box Turtles need shelter. Adding plenty of places for turtles to hide can help create a safe habitat for them. Brush piles, leaf litter, and low shrubs are all good places for these turtles to hide, and fruiting shrubs can also double as a food source.

There are a few other ways to protect these turtles. One of the threats that humans pose to Woodland Box Turtles is mowing - make sure you set your blades as high as you can to protect any turtles that may be hiding in the grass. These turtles are also most active in the morning, so avoiding mowing at that time can also help. Woodland Box Turtles also need clean soil, as they spend a lot of time in soil digging burrows, looking for food, and hibernating in the winter. Chemicals like herbicides and pesticides can get into the soil and be harmful to the turtles.



Figure 1 Black-eyed Susans. Photo by Acadia Imhof.

If you see these turtles, it's important not to move them - Woodland Box Turtles spend their whole lives in a one-mile radius, and so moving these turtles can be detrimental to their health or even kill them. If you see a turtle crossing the road, you can help it cross, making sure you put it on the side of the road that it is facing.

To encourage this species, plant these native species:

Native flowers and grasses like Big Bluestem, Black-eyed Susan, Ohio Spiderwort, and Stinging Nettle, and native fruiting shrubs like elderberries, blackberries, and mayapples. These species can provide food and shelter for turtles, as well as provide good habitat for the turtles' prey, like insects.

Common Name: Loggerhead Shrike

Scientific Name: *Lanius ludovivianus*

Status: State endangered

Habitat: Open grasslands, elevated perches and nesting sites

The Loggerhead Shrike is a small bird with a blue-gray head and back. The stomach and underside of the tail are white, and the bill is black and hooked. There is a 'mask' of black across the face. The wings are dark gray with broad white wing bars. Juveniles are a browner gray and lightly striped across the whole body.

Loggerhead Shrikes like isolated bushes and trees, especially those with thorns. Thorns help protect them from predators, provide a safe place to build nests, and help with hunting. These birds eat small rodents and invertebrates and use thorns to impale their prey before eating them. In the wild, thorny trees like Red Cedar and Hawthorn Trees are preferred, but the birds have also been known to use human-made materials like barbed wire.

These birds have become endangered in Indiana due to habitat loss and have been on the state-endangered list since 1981. In the '80s, approximately one hundred breeding pairs existed in the state, and now, as few as ten pairs remain. Creating a nesting habitat is the main effort toward conservation.

To encourage this species, plant these native species: Red Cedar Trees, Hawthorn Trees, and other small, native thorny shrubs for nesting.

Common Name: Monarch Butterfly

Scientific Name: *Danaus plexippus*

Habitat: Open areas such as fields, pastures, meadows, prairies, and woodlands. Overwinters on trees near streams.

The Monarch Butterfly is a well-known species, with distinctive orange and black markings. The edges of the wings have white spots, and the male has a black spot in the center of the hindwings. These insects have an incredibly long migration each winter, traveling up to 3,000 miles to get to a warmer climate.

The Monarch has a lookalike, the Viceroy butterfly (*Limenitis archippus*). Telling these two species apart can be tricky: The Viceroy is smaller and has a black line that runs horizontally across the hindwings. Along with this, the white spots on a Viceroy tend to be more organized and in distinct rows along the edges of the wings, while the Monarch's spots are larger and more varied up into the wing.



Monarch Butterfly on a Purple Coneflower.
Photo by Melanie Helmuth.

Monarchs are a threatened species, largely due to habitat loss. While populations have been declining for decades, more recently, there has been a slight increase in Indiana due to conservation efforts.

The Midwestern United States typically has a high number of Monarchs due to the amount of milkweed plants - the insect's host plant. While the butterflies feed on several flowering plants, the caterpillars only feed on milkweed. Planting milkweed in your yard can provide food and shelter for caterpillars, and having other native flower species, as well as a shallow water source, can provide a habitat for butterflies. This can also help in the creation of habitat corridors, something that has become essential for Monarch migration.



Butterfly Milkweed with a Honey Bee visitor.
Photo by Melanie Helmuth.

To encourage this species, plant these native species: Common Milkweed, Butterfly Milkweed, and Swamp Milkweed for caterpillars. Pale Purple Coneflower, Black-Eyed Susan, New England

Aster, Stiff Goldenrod, Showy Goldenrod, and other late-blooming native flowers for butterflies.

Common Name: Opossum

Scientific Name: Order *Didelphimorphia*

Habitat: Woodlands, wetlands, forests

Opossums are nocturnal marsupials (mammals that have a pouch) found in the Americas. A female opossum will give birth to as many as 20 tiny babies, and the ones that survive will develop in her pouch, occasionally riding on her back as they grow bigger. This animal is an excellent climber, using claws and a prehensile tail to climb trees.

Opossums are scavengers, so they eat whatever they can find - including ticks! They often eat carrion, grass, nuts, and fruits, but will also hunt rodents, birds, insects, worms, and snakes. If an opossum encounters a predator, it will play dead - rolling onto its back and sticking its tongue out.

Opossums are generally shy, slow-moving animals. Because of this, and the fact that they eat roadkill, opossums have high rates of getting hit by cars. Another reason for this is habitat loss - in more urban areas, there aren't many places for opossums to find shelter. You can help remedy this by building shelters in your yard.

Planting shrubs and trees with low-hanging branches can help opossums travel across branches and seek shelter from predators underneath the foliage. Having taller grass, tall, native prairie plants, and other hiding places like brush piles will encourage opossums as well.







Because opossums are omnivores, having a variety of food sources in your yard will help them. Planting fruiting shrubs provides food, as does planting things that encourage the prey of opossums - like insects or snakes.



























Blackberries. Photo by Acadia Imhof.

To encourage this species, plant these native species: Native berry bushes, like raspberries and blackberries, native flowering plants, and native shrubs like Buttonbush, Elderberry, and Northern Spicebush.

NATIVE PLANT CHART

Chart Key	Symbol
Full Sun	
Partial Sun	
Shade	
Dry	
Moist	
Wet	

Note: Always research a plant before planting it. Some native species, while not invasive, can still spread quite quickly without proper maintenance.

Common Name	Scientific Name	Blooming Period	Moisture Tolerance	Light Requirements
Blackberry	Genus <i>Rubus</i>	April-August		
Raspberry	<i>Rubus strigosus</i>	April-August		
Black-eyed Susan	<i>Rudbeckia hirta</i>	June-September		
Blue Vervain	<i>Verbena hastata</i>	July-September		
Butterfly Milkweed	<i>Asclepias tuberosa</i>	May-June		
Cinnamon Fern	<i>Osmunda cinnamomea</i>	N/A		
Common Milkweed	<i>Asclepias syriaca</i>	May-June		
Foxglove Beardtongue	<i>Penstemon digitalis</i>	May-June		
Heart-Leaved Plantain	<i>Plantago cordata</i>	April-May		
Ironweed	<i>Veronia fasciculata</i>	August-October		
Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>	March-June		
Leadplant	<i>Amorpha canescens</i>	June-July		

Mayapple	<i>Podophyllum peltatum</i>	April-May	☾ - ☾ ☾	☀️ ☁️
New England Aster	<i>Symphotrichum novae-angliae</i>	September-October	☾ - ☾ ☾ ☾	☀️
Ohio Spiderwort	<i>Tradescantia ohiensis</i>	May-July	☾ - ☾ ☾	☀️ ☀️
Ostrich Fern	<i>Genus Matteuccia</i>	N/A	☾ ☾ - ☾ ☾ ☾	☀️ ☁️
Pale Purple Coneflower	<i>Echinacea pallida</i>	June-July	☾	☀️
Woodland Sunflower	<i>Helianthus divaricatus</i>	June-September	☾	☀️
Purple Coneflower	<i>Echinacea purpurea</i>	July-September	☾	☀️
Royal Fern	<i>Osmunda regalis</i>	N/A	☾ ☾ - ☾ ☾ ☾	☀️ ☁️
Sensitive Fern	<i>Onoclea sensibilis</i>	N/A	☾ ☾ - ☾ ☾ ☾	☀️ ☀️ ☁️
Showy Goldenrod	<i>Solidago speciosa</i>	September-November	☾ - ☾ ☾	☀️ ☀️
Smooth Blue Aster	<i>Symphotrichum laevae</i>	August-October	☾ - ☾ ☾ ☾	☀️
Stiff Goldenrod	<i>Solidago rigida</i>	August-September	☾ - ☾ ☾	☀️ ☀️ ☁️
Stinging Nettle	<i>Urtica dioica</i>	March-September	☾ ☾ ☾	☀️ ☀️
Swamp Milkweed	<i>Asclepias incarnata</i>	June-October	☾ - ☾ ☾	☀️ ☀️
Tall Blazing Star	<i>Liatris aspera</i>	August-October	☾	☀️
Big Bluestem	<i>Andropogon gerardii</i>	August-October	☾ - ☾ ☾	☀️
Little Bluestem	<i>Schizachyrium scoparium</i>	August-October	☾ - ☾ ☾	☀️
Fox Sedge	<i>Carex vulpinoidea</i>	May-July	☾ ☾ - ☾ ☾ ☾	☀️ ☀️
Mace Sedge	<i>Carex grayi</i>	May-August	☾ - ☾ ☾ ☾	☀️ ☁️
Pennsylvania Sedge	<i>Carex pennsylvanica</i>	April-June	☾	☀️ ☁️
Tussock Sedge	<i>Carex stricta</i>	May-June	☾ - ☾ ☾ ☾	☀️ ☀️
Elderberry	<i>Sambucus canadensis</i>	May-July	☾ ☾	☀️
Buttonbush	<i>Cephalanthus occidentalis</i>	July-September	☾ ☾	☀️ ☀️
Fragrant Sumac	<i>Rhus aromatica</i>	April-June	☾ - ☾ ☾	☀️ ☀️

Northern Spicebush	<i>Lindera benzoin</i>	March	☾ . ☾ ☾	☀ ☀ ☁
Creeping Dogwood	<i>Cornus canadensis</i>	May-July	☾ . ☾ ☾	☀ ☁
Woodland Stonecrop	<i>Sedum ternatum</i>	April-May	☾ ☾	☀
Black Hawthorn	Genus <i>Crataegus</i>	May-June	☾ . ☾ ☾	☀
Canadian Hemlock	<i>Tsuga canadensis</i>	May-August	☾ ☾	☀ ☁
Eastern Wahoo	<i>Euonymus atropurpureus</i>	June-July	☾ . ☾ ☾	☀ ☀
Hazelnut	Genus <i>Corylus</i>	April-May	☾ . ☾ ☾	☀ ☀
Pawpaw	<i>Asimina triloba</i>	April-May	☾ . ☾ ☾	☀
Red Cedar	<i>Juniperus virginiana</i>	March-May	☾ . ☾ ☾	☀

FURTHER RESOURCES

Comprehensive lists of species

[DNR Indiana County Endangered, Threatened, and Rare Species List](#)

[Invasives Database - Indiana Invasive Species Council | Purdue.edu](#)

[Native Plants Finder - Indiana Wildlife Federation](#)

Sustainable practices

[Sustainable Gardening - American Horticultural Society](#)

[Sustainable Gardening: Solutions to Climate Change - University of Maryland](#)

Little Virgin Tiger Moth

[Species Apantesis virguncula - Little Virgin Tiger Moth](#)

Regal Fern Borer

[Papaipema speciosissima \(Regal fern borer\) - Michigan Natural Features Inventory](#)

[Moth Photographers Group - Papaipema speciosissima](#)

Sedge Moths

Subfamily Glyphipteriginae - Sedge Moths

Woodland Box Turtle

About the Woodland Box Turtle

Species Spotlight - Woodland Box Turtle (U.S. National Park Service)

Making Amends with Box Turtles

Loggerhead Shrike

Loggerhead Shrike Working Group

Adopt a Shrike - Indiana Audubon

Loggerhead shrike | Smithsonian's National Zoo and Conservation Biology Institute

Loggerhead Shrike - American Bird Conservancy

Monarch Butterfly

Monarch Butterfly: Endangered Species Facts, Info & More

Monarch Butterfly FAQs

Butterfly | Life Cycle, Classification, & Facts | Britannica

Monarchs | U.S. Fish & Wildlife Service

Opossums

Opossums | National Geographic

Opossums | The Humane Society of the United States

Food, water, and shelter

Bat Gardens & Houses | Bat Conservation International

Creating Bird Habitat at Home | Smithsonian Gardens

Helping in Your Backyard - Pollinators (U.S. National Park Service)

How to Build a Bug Hotel - Woodland Trust

Native, non-native, and invasive plants

Indiana Invasive Plant List | Indiana Native Plants

[What is the Difference Between Native, Non-native, and Invasive Plants? | Audubon](#)

Water conservation

[Landscaping for Water Conservation | Department of Energy](#)

[Planning Your Landscape to Conserve Water - Gardening Solutions](#)

[Maintaining a Healthy Yard: Reducing Runoff Pollution through Naturalization](#)

[How to Manage and Control Storm Water Runoff \(Fact Sheet\) | MU Extension \(missouri.edu\)](#)