

## Pollinator Activity: How to Raise a Butterfly Elementary Students

### A Conversation

- Where do you most often see butterflies?
- What are they doing when you see them?
- Have you ever seen a butterfly in another form?
- Butterflies (and moths) have an amazing and complicated life cycle
- What are the benefits of butterflies and moths? (They help pollinate plants that provide us food)
- What plants could butterflies pollinate?

### Introduce the life-cycle of a butterfly

- Share a [poster illustration](#) with the life cycle, including egg, caterpillar/instars, cocoon, butterfly.
- Find the butterfly, who is off to find a mate and eventually lay the eggs that become the next generation of butterflies.
- Find the egg
- Walk through the stages (timing can vary by species):
  - Egg (3-7 days)
  - Caterpillar (5 instars or stages over 2-5 weeks)
  - Chrysalis (1-2 weeks)
  - Butterfly (~2 weeks)
- What makes butterflies and moths insects?
  - Three pairs of legs
  - Segmented body divided into three regions: head, thorax, and body
  - One pair of antennae
- When is the caterpillar doing most of its growing? (As a caterpillar) What is the caterpillar eating? (It is dependent on milkweed or other native plants to complete its life cycle)

Now we are going to learn about some of those special relationships between plants, caterpillars and butterflies with our special puzzles.

## Pollinator Activity: How to Raise a Butterfly Elementary Students

### Activity Preparation: Make Plant-Caterpillar-Butterfly Puzzles

Start with the three-piece plant-caterpillar-butterfly images available at the end of this document.

Print the images on cardstock or other sturdy paper, then cut each plant-caterpillar-butterfly trio into three puzzle pieces that fit together uniquely.



*Optional:* Attach the informational text (also at the end of the document to the back of each butterfly, plant, and caterpillar puzzle piece. (Hint: the same text is used for the trio; print three copies of the butterfly/moth descriptions.)

### Activity

- Pass out plant, caterpillar, and butterfly pieces, randomly (puzzles should intentionally be mismatched) to the students.
- Plants remain “planted”
- Butterflies and caterpillars disperse and try to find each other.
- Once the butterflies and caterpillars are matched, find your host plant.
- Each group describes its butterfly, caterpillar, and plant by saying:
  - I am the \_\_\_\_\_ butterfly or moth, and I lay my eggs on (name plant)
  - I am the caterpillar of the \_\_\_\_\_ butterfly or moth and I eat (name plant)
  - I am (name plant), the host plant for the \_\_\_\_\_ butterfly or moth
- Students will identify, draw or list what a healthy ecosystem would include for a butterfly to exist.

## Pollinator Activity: How to Raise a Butterfly Elementary Students

### Relate Raising Butterflies to Caring for the Land

- To raise a butterfly (or many butterflies), what can kids/people do? Answer: Plant host plants of our native plant species.
- By planting native plants, you are learning to care for the species that call Indiana home.
- Did you know that you are also invited to receive a special gift, one that invites you to learn more about how to care for our land?
- Introduce the Children of Indiana Nature Park, a gift of land given to all Hoosier youth:

*Did you know that YOU have been chosen to receive a special gift? What do you think of when you hear the “park”? Slides? Swings? Playgrounds?*

*Well, we have a NEW way to think about a park. When you hear that word, we want you to think of trees, birds, insects, and presents. Wait, presents?! Yes, presents.*

*The State of Indiana has decided to give you a gift, but it’s not one that you unwrap, it’s one that you protect, just like a special birthday gift. Indiana created The Children of Indiana Nature Park in Centerville, Indiana in honor of kids like you. It doesn’t have swings or slides; instead, it has trees, trails, tracks, and turtles. Indiana thinks you are so important, that you can claim a “deed” for a piece of this land.*

*What’s a deed? It means that you are in charge of protecting something special. You or an adult who is with you can claim your deed on this website. The deed is an invitation for you to learn about your little piece of land and other land near you.*

*Why is this land important? What can you do to protect this land or the land that we live on?*

*Start exploring nature today!*

- Distribute Nature IN-Deeds from [www.ilovemyland.org](http://www.ilovemyland.org). Invite class to discuss other ways that they can care for our lands.

The following performance measures are met in this activity:

<b>Alignment with the            Environmental Education Association of Indiana's            Environmental Literacy Guidelines (ELG) for Elementary School</b> <a href="http://www.eeai.org/page-1768530">http://www.eeai.org/page-1768530</a>
<p>IELG.1.4.1 Develop questions that help them learn about organisms, objects, places, and relationships in the local environment, especially in nearby outdoor areas with which students have a personal connection.</p> <p>IELG.1.4.6 Use models to demonstrate relationships, patterns, and processes.</p> <p>IELG.2.4.4 Define a healthy ecosystem and list the components of one *</p> <p>IELG.2.4.8 Give examples of how different organisms adapt to changes in their habitat. *</p> <p>IELG.2.4.9 Be able to tell the difference between and give examples of natural, human influenced and human-built ecosystems in Indiana. *</p> <p>IELG.3.4.1 Identify environmental problems and issues in local environments and communities.</p> <p>IELG.3.4.9 Develop and explain an action plan for an issue and describe the actions that can be done by individuals, groups or as a class.</p> <p>IELG.3.4.10 Describe how their own actions and those of others have affected an issue</p> <p>IELG.4.4.2 Understand what is meant by the term 'environmental stewardship.</p> <p>IELG.4.4.3 Understand how their civic responsibilities promote personal actions that support their environment. * develop a butterfly garden on their school yard</p> <p>IELG.4.4.4 Help create simple but effective plans and take successful actions that will have positive consequences for their local environment</p> <p>IELG.4.8.1 Expand their personal connections with their local environment.</p>

Each of the four strands anticipates mastery of material by 4<sup>th</sup> grade, 8<sup>th</sup> grade and 12<sup>th</sup> grade, measured by a series of performance measures. The following notation explains which strand is covered, what grade level, and which performance measure.

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### Indiana Academic Standards Covered

- 2.LS.1 Determine patterns and behavior (adaptations) of parents and offspring which help offspring to survive.
- 2.LS.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.
- 2.LS.3 Classify living organisms according to variations in specific physical features (i.e. Body covering, appendages) and describe how those features may provide an advantage for survival in different environments.
- 3.LS.1 Analyze evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms
- 3.LS.3 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- 4.ESS.3 Develop solutions that could be implemented to reduce the impact of human on the natural environment and the natural environment on humans.
- 4.LS.1 Observe, analyze and interpret how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction
- 4.LS.2 Use evidence to support the explanation that a change in the environment may result in a plant or animal will survive and reproduce, move to a new location, or die.
- 5.LS.2 Observe and classify common Indiana organisms as producers, consumers, decomposers, or predator and prey based on their relationships and interactions with other organisms in their ecosystem.
- 5.LS.3 Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways

## Pollinator Activity: How to Raise a Butterfly For Middle School Students

### A Conversation

- Where do you most often see butterflies?
- What are they doing when you see them?
- Have you ever seen a butterfly in another form?
- Butterflies (and moths) have an amazing and complicated life cycle
- Butterflies (and moths) are picky eaters
- What are the benefits of Butterflies and moths? (They help pollinate plants that provide us food)
- What plants could butterflies pollinate?

### Discussion of the Eco system of a butterfly

- Share a [poster illustration](#) with the life cycle, including egg, caterpillar/instars, cocoon, butterfly.
- Walk through the stages (timing can vary by species):
  - Egg (3-7 days)
  - Caterpillar (5 instars or stages over 2-5 weeks)
  - Chrysalis (1-2 weeks)
  - Butterfly (~2 weeks)
- When is the caterpillar doing most of its growing? (As a caterpillar)
- What is the caterpillar eating? (Monarchs are dependent on milkweed or other native plants to complete its life cycle)
- What is the butterfly eating? (Colorful fragrant flowers that provide nectar.)
- What happens when there is a food scarcity?
- What happens when the food has been sprayed with insecticide?
- What other issues can alter the Eco system? (invasive plants)
- Summarize what the ecosystem of a butterfly needs.

### Relate Butterflies and Moths to Native Plants

- Do we have only one kind of butterfly in Indiana?
- Do we only have one kind of plant in Indiana?
- There are many varieties of moths and butterflies, each of which has developed a special relationship with a plant or family of plants
- We know monarchs depend on milkweed plants...but will just any plant do? (No, monarchs lay their eggs on milkweed plants and the eggs hatch with caterpillars. When those caterpillars eat the milkweed they grow strong and absorb the toxins in the plant to make them toxic to those trying to

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eat them. Birds find the monarch caterpillars toxic and the bright markings make them easy for the birds to see, thus they are less likely to be eaten)

- In their adult form, monarch butterflies are attracted to a variety of plants for nectar, but they will only lay their eggs on milkweed because that is the only plant that monarch caterpillars can eat.
- Therefore, it is critical to the monarch's life cycle that milkweed plants are available to host their caterpillars (i.e., the larval stage of their development). A monarch butterfly will fly around until it finds a milkweed plant upon which it will deposit its eggs.
- Invasive plants species that dominate a landscape can become a problem for monarchs if they "crowd out" native plants and do not leave room for milkweed plants to grow.

### **Activity Preparation: Make Plant-Caterpillar-Butterfly Puzzles**

Start with the three-piece plant-caterpillar-butterfly images available at the end of this document.

Print the images on cardstock or other sturdy paper, then cut each plant-caterpillar-butterfly trio into three puzzle pieces that fit together uniquely.



*Optional:* Attach the informational text (also at the end of the document to the back of each butterfly, plant, and caterpillar puzzle piece. (Hint: the same text is used for the trio; print three copies of the butterfly/moth descriptions.)

**Activity** *These activities start with a hands-on attention getter and move into more long-term projects*

- Pass out plant, caterpillar, and butterfly pieces, randomly (puzzles should intentionally be mismatched) to the students.
- Plants (i.e., students with a plant puzzle piece) remain "planted"
- Butterflies and caterpillars disperse and try to find each other.
- Once the butterflies and caterpillars are matched, find your host plant
- Students explain, illustrate, or describe the ecosystem of a butterfly and the biodiversity needed
- Students explain or illustrate how the monarch caterpillar is poisonous because of its diet.
- Students develop a butterfly garden plan that includes all that is needed for the butterfly's ecosystem

## Pollinator Activity: How to Raise a Butterfly For Middle School Students

### Relate Raising Butterflies to Caring for the Land

- To raise a butterfly (or many butterflies), what can kids/people do? Answer: Plant a diverse variety of host plants of our native plant species.
- By planting native plants, you are learning to care for the species that call Indiana home.
- Did you know that you are also invited to receive a special gift, one that invites you to learn more about how to care for our land?
- Introduce the Children of Indiana Nature Park, a gift of land given to all Hoosier youth:

*Did you know that YOU have been chosen to receive a special gift? What do you think of when you hear the “park”? Slides? Swings? Playgrounds?*

*Well, we have a NEW way to think about a park. When you hear that word, we want you to think of trees, birds, insects, and presents. Wait, presents?! Yes, presents.*

*The State of Indiana has decided to give you a gift, but it’s not one that you unwrap, it’s one that you protect, just like a special birthday gift. Indiana created The Children of Indiana Nature Park in Centerville, Indiana in honor of kids like you. It doesn’t have swings or slides; instead, it has trees, trails, tracks, and turtles. Indiana thinks you are so important, that you can claim a “deed” for a piece of this land.*

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*Why is this land important? What can you do to protect this land or the land that we live on?*

*Start exploring nature today!*

- Distribute Nature IN-Deeds from [www.ilovemyland.org](http://www.ilovemyland.org). Invite class to discuss other ways that they can care for our lands.



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<b>Alignment with the            Environmental Education Association of Indiana's            Environmental Literacy Guidelines (ELG) for Middle School</b> <a href="http://www.eeai.org/page-1768530">http://www.eeai.org/page-1768530</a>
<p>IELG.1.8.5 Classify, organize, and display data and information in ways that help others be able to understand, analyze and interpret the data.</p> <p>IELG.2.8.2 Explain biodiversity;            IELG.2.8.5 Explain how organisms and populations of organisms interact with one another *            IELG.2.8.11 Explain and give examples of how humans shape the environment;</p> <p>IELG.3.8.2 Use environmental monitoring techniques to collect data about environmental issues.            IELG.3.8.5 Identify people and groups of people who are involved in an issue, be able to express the viewpoints of those people and groups, the types of action they support, and where they agree and disagree.            IELG.3.8.6 Articulate and justify their own views on an issue based on information from a variety of credible sources and logical deduction.            IELG.3.8.8 Develop action plans that can be carried out by individuals, in small groups or with a class, club or larger organization.</p> <p>IELG.4.8.2 Develop a sense of place and understand their unique position in the global environment.            IELG.4.8.4 Create and put into action a personal plan for themselves and their families for effective environmental stewardship.</p>

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## Pollinator Activity: How to Raise a Butterfly For High School Students

### A Conversation

- Where do you most often see butterflies?
- What are they doing when you see them?
- Have you ever seen a butterfly in another form?
- How are butterflies (and moths) beneficial to you? (they pollinate the food we eat, i.e. tomatoes)
- Butterflies (and moths) have an amazing and complicated life cycle
- Butterflies and moths are picky eaters

### Discussion of the Ecosystem of a butterfly

- Share a [poster illustration](#) with the life cycle, including egg, caterpillar/instars, cocoon, butterfly.
- Walk through the stages (timing can vary by species):
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- What is the caterpillar eating? (Monarchs are dependent on milkweed or other native plants to complete its life cycle)
- What is the butterfly eating? (Colorful fragrant flowers nectar)
- What happens when there is a food scarcity?
- What happens when the food has been sprayed with insecticide?
- What other issues can alter the Eco system? (invasive plants)
- Summarize what the ecosystem of a butterfly needs.

### Relate Butterflies and Moths to Native Plants

- Do we have only one kind of butterfly in Indiana?
- Do we only have one kind of plant in Indiana?
- Define Biodiversity “the variety of life in the world or in a particular habitat or ecosystem”
- There are many varieties of moths and butterflies, each of which has developed a special relationship with a plant or family of plants
- We know monarchs depend on milkweed plants...but will just any plant do? (No, monarchs lay their eggs on milkweed plants and the eggs hatch with caterpillars. When those caterpillars eat the milkweed, they grow strong and absorb the toxins in the plant to make them toxic to those trying to eat them. Birds find the monarch caterpillars toxic and the bright markings make them easy for the birds to see, thus they are less likely to be eaten)

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- In their adult form, monarch butterflies are attracted to a variety of plants, but they will only lay their eggs on milkweed because that is the only plant that monarch caterpillars can eat.
- Therefore, it is critical to the monarch's life cycle that milkweed plants are available to host their caterpillars (i.e., the larval stage of their development). A monarch butterfly will fly around until it finds a milkweed plant upon which it will deposit its eggs.
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**Activity** *These activities start with a hands-on attention getter and move into more long-term projects*

- Pass out plant, caterpillar, and butterfly pieces, randomly (puzzles should intentionally be mismatched) to the students.
- Plants (i.e., students with a plant puzzle piece) remain "planted"
- Butterflies and caterpillars disperse and try to find each other.
- Once the butterflies and caterpillars are matched, find your host plant.
- Discuss the importance of butterflies, how butterflies represent many different types of pollinators.
- 1/3<sup>rd</sup> of our agricultural food comes from pollinated plants. We need pollinators.
- Walk around the school yard, or other identified property, and evaluate it as an ecosystem for butterflies.
- Students are invited to ask questions and suggest/implement solutions regarding the current lifecycle and environment for butterflies.

## Pollinator Activity: How to Raise a Butterfly For High School Students

- Students develop a plan for a butterfly garden include how the garden will be installed, what plants will be needed, and how the garden will be maintained.

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<p>IELG.1.12.1 Develop, modify, clarify, and explain questions about important environmental issues, and describe why and how they arrived at those questions. *</p> <p>IELG.1.12.3 Use appropriate problem-solving methods, tools, and technology to do the investigations.</p> <p>IELG.2.12.2 Describe the value of ecosystems from both natural and human perspectives: e.g., food, shelter, flood control, water purification.</p> <p>IELG.2.12.4 Analyze the factors that determine carrying capacity (the number of organisms that can exist in a given area)</p> <p>IELG.2.12.5 Evaluate the importance of biodiversity</p> <p>IELG.2.12.7 Analyze the factors that determine carrying capacity (the number of organisms that can exist in a given area)</p> <p>IELG.3.12.2 Design and conduct a field investigation to gather information and data on an environmental issue in order to guide decisions on action steps.</p> <p>IELG.4.12.1 Articulate their personal beliefs regarding their relationship to the environment and how they arrived there by citing personal experiences, alternative viewpoints, and the research of scientifically-relevant sources.</p>

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## The Butterfly Life Cycle

Let's explore a butterfly's life cycle in detail, including all four stages of life. All butterflies have "complete metamorphosis." To grow into an adult, they go through 4 stages: egg, larva, pupa and adult. Each stage has a different goal - for instance, caterpillars need to eat a lot, and adults need to reproduce. Depending on the type of butterfly, the life cycle of a butterfly may take anywhere from one month to a whole year. You can print out this [Butterfly Life Cycle coloring page](#) to follow along as we talk about the 4 stages.

## The First Stage: The Egg



*Monarch Butterfly Eggs on a Leaf*

A butterfly starts life as a very small, round, oval or cylindrical egg. The coolest thing about butterfly eggs, especially monarch butterfly eggs, is that if you look close enough you can see the tiny caterpillar growing inside of it. Some butterfly eggs may be round, some oval and some may be ribbed while others may have other features. The egg shape depends on the type of butterfly that laid the egg.

Butterfly eggs are usually laid on the leaves of plants, so if you are actively searching for these very tiny eggs, you must take some time and examine quite a few leaves to find some.

### The Second Stage: The Larva (Caterpillar)



*Monarch Butterfly Caterpillar*

When the egg finally hatches, most of you would expect for a butterfly to emerge, right? Well, not exactly.

In the butterfly's life cycle, there are four stages and this is only the second stage. Butterfly larvae are what we call caterpillars. Caterpillars do not stay in this stage for very long and mostly, in this stage all they do is eat.

When the egg hatches, the caterpillar will start his work and eat the leaf they were born onto. This is important because the mother butterfly needs to lay her eggs on the type of leaf the caterpillar will eat – each caterpillar type likes only certain types of leaves. Since they are tiny and cannot travel to a new plant, the caterpillar needs to hatch on the kind of leaf it wants to eat.

Caterpillars need to eat and eat so they can grow quickly. When a caterpillar is born, they are extremely small. When they start eating, they instantly start growing and expanding. Their exoskeleton (skin) does not stretch or grow, so they grow by “molting” (shedding the outgrown skin) several times while it grows.

What is significant about the look of the caterpillar is how brightly colored it is. The caterpillar's colors make it look unappetizing to predators such as spiders and unique to those predators who do happen to eat one. Because the caterpillars are poisonous due to the milkweed they eat, when a predator eats a caterpillar and becomes ill, they remember not to eat another white, black, and yellow striped caterpillar. This helps the caterpillars survive to become butterflies.

## Pollinator Activity: How to Raise a Butterfly Appendix - Butterfly Life Cycle

Caterpillars also have a good sense of touch from hairs all over their body. Overtime, the way they respond to touch may change.

The caterpillars are the same colors and eat the same plants as their parents did. All monarch generations depend on the milkweed plant for their survival.

### The Third Stage: Pupa (Chrysalis) *Caterpillar Becoming a Chrysalis*



The pupa stage is one of the coolest stages of a butterfly's life. As soon as a caterpillar is done growing and they have reached their full length/weight, they form themselves into a pupa, also known as a chrysalis. From the outside of the pupa, it looks as if the caterpillar may just be resting, but the inside is where all the action is. Inside of the pupa, the caterpillar is rapidly changing. Caterpillars are short, stubby and have no wings at all. Within the chrysalis the old body parts of the caterpillar are undergoing a remarkable transformation, called metamorphosis, to become the beautiful parts that make up the butterfly that will emerge. Tissue, limbs and organs of a caterpillar have all been changed by the time the pupa is finished, and is now ready for the final stage of a butterfly's life cycle.



### The Fourth Stage: Adult Butterfly



*Monarch Butterfly Emerging from a Chrysalis*

Finally, when the caterpillar has done all its forming and changing inside the pupa, if you are lucky, you will get to see an adult butterfly emerge. When the butterfly first emerges from the chrysalis, both wings are going to be soft and folded against its body. This is because the butterfly had to fit all its new parts inside of the pupa. As soon as the butterfly has rested after coming out of the chrysalis, it will pump blood into the wings to get them working and flapping – then they get to fly. Usually within a three or four-hour period, the butterfly will master flying and will search for a mate to reproduce.

When in the fourth and final stage of their lives, adult butterflies are constantly on the look out to reproduce and when a female lays their eggs on some leaves, the butterfly life cycle will start all over.

Monarch butterflies are all orange, black, and white. This means that a butterfly's parents looked similar to how the monarchs you see today look. This coloration helps ensure their survival because predators know the monarch's colors are ones to stay away from. This is because like the caterpillars, freshly emerged butterflies are poisonous to predators such as birds and wasps. The predators that choose to eat them are poisoned and will not eat an orange colored butterfly again. Though monarchs may have the same colors, patterns vary between male and female butterflies. Male butterflies have hind wing patches of black, while females do not.

## Pollinator Activity: How to Raise a Butterfly Appendix - Butterfly Life Cycle



Female



Male

It is also possible to observe age differences between butterflies. Some older butterflies may look worn and tattered while other younger ones look new and fresh.

When monarch butterflies visit flowers, they spread the pollen from plant to plant. This is important because pollinators are what help grow the food that humans need. They can find the flowers they want with their senses of touch, using hairs that reach their exoskeletons. But most of it is from taste and smell. Adult butterflies smell through their antennae. They also use smell to find mates.

### Using the Environmental Education Association of Indiana's Environmental Literacy Guidelines (ELG)

There are four Strands to Indiana's ELG:

1. Questioning, Analysis, and Interpretation: How to ask questions, analyze information, and interpret scientific data.
2. Knowledge of Environmental Processes and Systems: What we need to know about how the environment works.
3. Skills for Understanding and Addressing Environmental Issues: Skills that we need to understand and solve environmental issues.
4. Personal and Community Action: Our role in the environment, personally and as a citizen.

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- 1st Performance measure

**Wild Lupine**

*Lupinus perennis*



Photo courtesy of Jackie Donnelly



Photo courtesy of Gardening-For-Wildlife.com

**Karner blue butterfly**

*Lycaeides melissa samuelis*



Photo courtesy of US Fish and Wildlife Service

**Mayapple fruit**

*Podophyllum peltatum*



Photo courtesy of 66squaregeet.blogspot.com

**Mayapple**

*Podophyllum peltatum*



Photo courtesy of usi.edu

**Black Cherry**

*Prunus serotina*



Photo courtesy All-Creatures.org



Photo courtesy of Jay Cossey

**Cecropia Moth**

*Hyalophora cecropia*



Photo courtesy ambwallpapers.com

**Black Nightshade**

*Solanum ptycanthum*



Photo courtesy of illinoiswildflowers.info



Photo courtesy of msue.ansr.msu.edu

**Carolina Sphinx Moth**

*Manduca sexta*



Photo courtesy of extension.entm.purdue.edu

**Violets**

*Viola spp*



Photo courtesy of claytonvnp.org



Photo courtesy of prairiehaven.com

**Great Spangled Fritillary**

*Speyeria cybele*



Photo courtesy of ohio-nature.com

**New England Aster**

*Symphoricarum novae-angliae*



Photo courtesy of oaklandnaturalareas.com / Cam Mannino



Photo courtesy of aimanac.com

**Isabella Tiger Moth**

*Pyrrharctia isabella*



Photo courtesy of naturalhistory.crowspath.org

**Paw paw**

*Asimina triloba*



Photo courtesy of Purdue University



Photo courtesy of animalspot.net

**Zebra Swallowtail**

*Speyeria cybele*



Photo courtesy of dickstannard.com

**Spicebush**

*Lindera benzoin*



Photo courtesy of naba.org



Photo courtesy of pgnaturegarden.org

**Spicebush Swallowtail**

*Papilio troilus*



Photo courtesy of wisconsinbutterflies.org

**Golden Alexander**

*Zizia aurea*



Photo courtesy of delawarewildflowers.org



Photo courtesy of appalachianfeet.com

**Black Swallowtail**

*Papilio polyxenes*

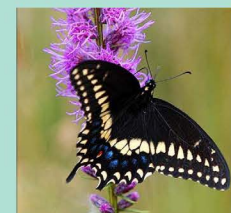


Photo courtesy of ohio-nature.com

**Sugar Maple**

*Acer saccharum*



Photo courtesy of extension.iastate.edu



Photo courtesy of discoverlife.org

**Rosy Maple Moth**

*Dryocampa rubicunda*



Photo courtesy of projectnoah.org

**Sweet Gum**

*Liquidambar styraciflua*



Photo courtesy of gobotany.newenglandwild.org



Photo courtesy of butterflyworkx.com

**Luna Moth**

*Actias luna*



Photo courtesy of the roaming naturalist.com

**Common Primrose**

*Oenothera biennis*



Photo courtesy of jimbotany.com



Photo courtesy of biosurvey.ou.edu

**White-lined Sphinx Moth**

*Hyles lineata*

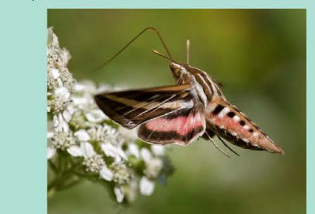


Photo courtesy of stevecreek.com

**Common Milkweed**

*Asclepias syriaca*



Photo courtesy of extension.umass.edu



Photo courtesy of Toronto-wildlife.com

**Monarch**

*Danaus plexippus*



Photo courtesy of outdoorontario.net

**Northern Red Oak**

*Quercus rubra*



Photo courtesy of illinoiswildflowers.info



Photo courtesy of entnemdept.ufl.edu

**Eastern Buck Moth**

*Hemileuca maia*



Photo courtesy of northstarnature.com

**Virginia Creeper**

*Parthenocissus quinquefolia*

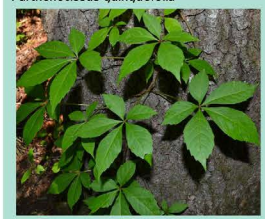


Photo courtesy of ask-extension.org



Photo courtesy of Toronto-wildlife.com

**Pandorus Sphinx**

*Dichorda iridaria*



Photo courtesy of inaturalist.org

**Poison Ivy**

*Toxicodendron radicans*



Photo courtesy of medicinenet.com



Photo courtesy of mothphotographers.msstate.edu

**Showy Emerald Moth**

*Dichorda iridaria*



Photo courtesy of discoverlife.org

**Karner blue butterflies** are considered an endangered species due to dramatic declines in population. Preferring pine barren and black oak savanna habitats, this butterfly is more likely to be seen in northwest Indiana near the lakeshore.

Its host plant, **wild lupine**, also prefers dry sandy soils. The karner blue butterflies and wild lupine are linked in several ways. For example, when the flowers bloom, caterpillars hatch from the eggs laid on lupine the previous year. The caterpillars will then feed on the lupine leaves until they are ready to form their chrysalis.



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**Cecropia moths** are the largest moth species in North America. Because adult Cecropia moths do not have mouths, they are only alive at this stage for a short time to mate. It is the caterpillars who eat the leaves of **black cherry trees**.

Pests to Cecropia moths are an issue when they are in their larval or caterpillar stage. Wasps and flies will lay eggs on the caterpillars. When the eggs hatch, the larvae will eat the caterpillars. Scientists speculate that the colorful nodules on the caterpillar are there to trick the parasitic insects into thinking that they've already been attacked.



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The **great spangled fritillary butterfly** can be seen from mid-June to mid-September. These butterflies will lay eggs on or near **violets**. When the caterpillars hatch, they eat the violets. As adults, the butterflies will enjoy the nectar of the violets among many other flower species.

**Zebra swallowtails** can be seen April through August. They tend to breed in low woodlands areas that are nearby swamps and rivers, where their only host plant—the **pawpaw**—grows. Male zebra swallowtails fly in the understory near host plants to find female with whom to mate. Females will lay single eggs on the lower leaves of the host plant. Once they hatch from their eggs, caterpillars can be found eating the leaves of pawpaw shrubs. Adults will feed on nectar from plants found in open fields or brushy areas such as blackberry, lilac, and redbuds.



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**Black swallowtail butterflies** are one of the most commonly seen and easily identifiable butterfly species. They are found throughout much of North America, but are rare in the Florida Keys. This is due to an absence of their carrot family host plants, one of which is **golden Alexander**. The butterflies will lay single eggs on the golden Alexander plant, and the caterpillars will feast on the plants. Caterpillar color will vary depending on if it is of the overwinter generation or not. The caterpillars that overwinter tend to be brown, and those who do not are more yellow or green.

**Luna moths** are easy to identify with their large pale green wings, eyespots, and long tails on their hindwings. Their wing span is between two and four inches, which helps make them strong fliers. They are attracted to lights so look on lamp posts or windows for a chance to see them. They host on a variety of trees, including the **sweet gum**. Luna moths mate after midnight and lay eggs very soon after that on sweet gums, among others.



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Adult **monarch butterflies** lay single eggs on a **milkweed plant**. When the eggs hatch, these caterpillars with bands of cream, yellow, and black, eat the leaves of the milkweed. Although the plant is poisonous, it does not harm monarch butterfly caterpillars, and because milkweed is all it eats, the caterpillar and adult butterfly become poisonous to anything that would eat them.



The **mayapple** is a poisonous woodland plant. These can be found in large numbers and grow from one root. They have large wide leaves that resemble umbrellas. Certain stems will only produce single leaves while the flowering stems will have two leaves and produce a white flower and then a fruit. The flowers can be seen in the month of May while the fruits are produced later in the summer.

The mayapple seeds dangle at a perfect height for **eastern box turtles** to reach. The seeds will have a much higher chance of germination if they pass through the digestive tract of the turtle. It is a great example of a symbiotic relationship.



The **Isabella tiger moth** is a generalist feeder but can be found on **New England aster**, as this plant is very attractive to pollinators, so it might have a good chance to meet a mate on the flowers. These moths will lay their eggs on a variety of host plants.

Once the eggs hatch, the caterpillars will exist in their larval state for some time and will “over-winter” as such by freezing solid. In the spring, it will thaw and emerge to pupate. Once it becomes a moth, it has only days to find a mate.



The large **pandorus sphinx moth** has a wingspan between three and four inches. The females are usually slightly larger than the males. Caterpillars will eat **Virginia creeper** leaves and once they are ready, the caterpillars pupate in shallow cavities in the ground. Adult moths feed on nectar from a variety of flowers, including petunias, bouncing bet, and white campion.



**Carolina sphinx moths** are large with wingspans between three and four inches. The caterpillars of this species are known as tobacco hornworms because of the single red horn on the end of their abdomen and because one of their habits and hosts is tobacco fields and the tobacco plant. They also host on a variety of plants in the **black nightshade family**.



The **spicebush swallowtail** is named from its most common host plant, the **spicebush**. As caterpillars, they eat the leaves of the spicebush. Then as adult butterflies, spicebush swallowtails eat the nectar of the plant. The spicebush swallowtail can be seen from April through October. The caterpillars will take shelter in folded leaves and go out at night to feed and mimic snakes to try and scare off predators.



The **rosy maple moth** gets its name because the caterpillars of this species feast on a variety of maples, one of which is the **sugar maple**. The caterpillars eat the maple leaves, but adult moths do not eat; they only mate and then lay eggs. Rosy maple moths inhabit deciduous forests and as soon as they emerge as moths after overwintering as pupa, it only takes a day before the females lay eggs. The eggs hatch two weeks after that and the cycle begins again.



Male and female **eastern buckmoths** can be distinguished by a red tip on the male's black abdomen and the female's all black abdomen. Adults emerge from the pupa state in the morning, mate in the early afternoon, and by late afternoon the females are laying groups of eggs in rings around twigs of the host plants, such as various oak trees including **northern red oak**. The eggs will overwinter and when they hatch in the spring, the caterpillars feast in groups on the oak leaves. The adults do not eat; they only mate.



The **white-lined sphinx moth** can be seen from March through October. Its rapid wing movement resembles the way a hummingbird hovers over flowers while it feeds. This movement gives this moth its nickname of "hummingbird moth." Caterpillars of this species eat **evening primrose**, and adult butterflies enjoy the nectar of the flower.



The **showy emerald moth** is found only in the eastern United States and should not be confused with the luna moth. The showy emerald moth is green, but has no eye spots and no tail on the hindwings and is considerably smaller. The caterpillars are brown and use their coloring and shape to disguise themselves as bark or leaves. They feed on **poison ivy**.



**Printing these labels out? Use an 8.5" x 11" sheet with six labels, each measuring 4" x 3.33".**