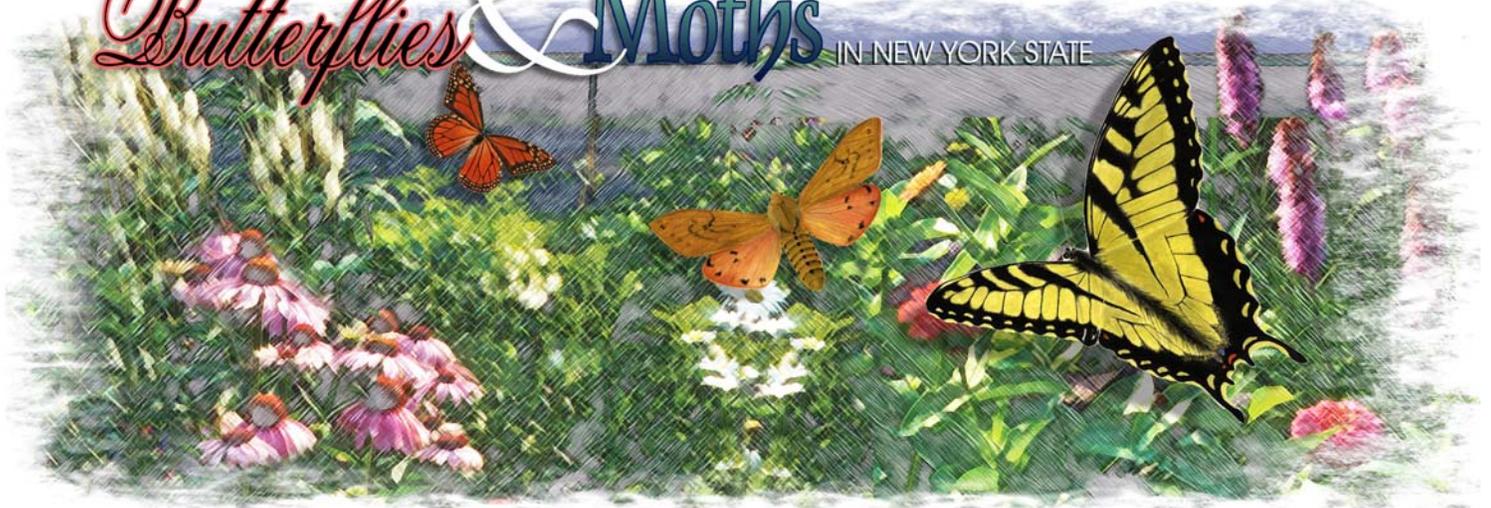


A SAMPLER OF Butterflies & Moths IN NEW YORK STATE



*F*loating on a breeze, circling around a light, or flitting from flower to flower, butterflies and moths are delicate, often colorful creatures that delight the observer. In New York, these fuzzy insects are most often seen during the warmer days of spring, summer and fall, but they can also occur on a warm winter's day.



Outnumbered only by the beetles, butterflies and moths make up the second largest insect order, Lepidoptera (meaning scale-winged). They are found on all continents except Antarctica, with some 170,000 different species known throughout the world. Of those, moths are far more common, with butterflies only accounting for less than 10% of lepidopteran species.

The butterflies' and moths' colorful wings play an important role in their lives. The distinct colors and patterns allow males and females of the same species to locate each other. In certain species, such as the monarch, the bright color is a warning signal for predators to beware. Monarchs are poisonous and taste terrible to predators. Other species, such as the viceroy, mimic this coloring to protect themselves from being eaten, even though they taste good. Still other butterflies have coloring that provides camouflage, enabling them to blend into their environment.

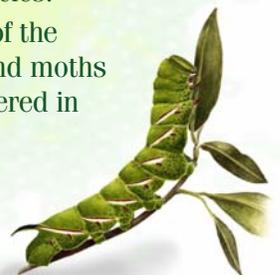
All species of Lepidoptera undergo complete metamorphosis, comprised of four different stages: egg; larva (caterpillar); pupa (in a cocoon or a naked chrysalis); and adult. Eggs are generally laid on plants which often serve as the food source for caterpillars

when they hatch. Caterpillars eat continuously, growing to hundreds of times their original size before spinning cocoons to become pupae. While in their cocoons, the caterpillars' body structures change so that they emerge as winged adults.

Most caterpillars eat plants. For some, however, aphids, ant larvae, stored grains and even woolen clothes provide a tasty meal. Flower nectar is the preferred food of adult butterflies and moths, but they will also eat pollen, rotting fruit, carrion, and dung. While feeding on flowers, these insects aid in pollination. Interestingly, some species of butterflies and moths, such as the primrose moth, are very selective, spending their entire life cycle feeding on a particular flower species.

Butterflies and moths are important food items for a number of animal and insect species. Caterpillars are eaten by many birds and some insects, while bats, birds and spiders eat the adults. In addition, some flies and wasps are parasites on lepidopteran species.

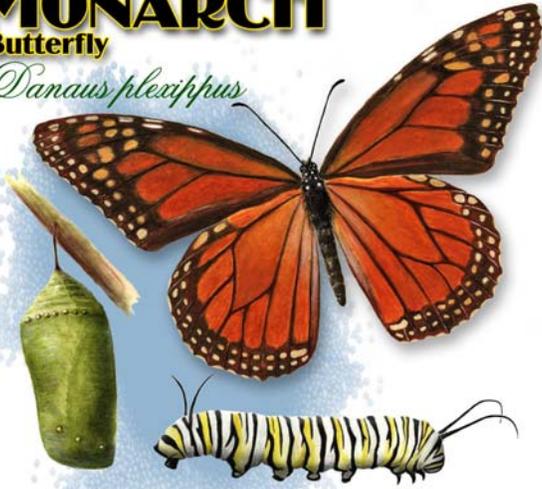
The following is just a sampling of the numerous species of butterflies and moths that are more commonly encountered in New York State.



MONARCH

Butterfly

Danaus plexippus



Wingspan: 3" - 5"

Monarch butterflies are perhaps our most readily recognized butterfly. Large with bright orange and black wings, they occur just about anywhere during the summer, but prefer weedy areas along roadsides, and in pastures and fields where milkweed occurs. They are well-known for their long migrations to and from their wintering grounds in the mountains of central Mexico. During the northward spring migration, female monarchs lay eggs on milkweed along the way. The butterflies produced from these eggs continue the trek north, reaching their destination in time to lay eggs, producing the next generation for the return trip south. Monarch caterpillars feed on milkweed which contain a toxin. The caterpillars are able to tolerate the toxin and store it in their body fat. Adults retain the poison. This protects monarchs from predators. If a bird attempts to eat a monarch, it will almost immediately vomit, so the bird quickly learns to avoid monarchs. The viceroy butterfly, a non-migrant insect native to New York, closely mimics the color and pattern of the monarch, thus tricking birds from eating it.

Also called hawk moths, sphinx moths are spectacular fast-flying moths with large heavy bodies and narrow wings. Most species of sphinx are nocturnal (active at night) or crepuscular (active at dawn and dusk), but a few are diurnal (active during the day). Certain species that feed during daylight hours are nicknamed hummingbird moths because they are sometimes mistaken for hummingbirds as they zoom from flower to flower. The apple sphinx is common throughout New York State and is the species most frequently encountered here. Nocturnal, it is often spotted flying around lampposts and other outside lights. Despite its common name, the apple sphinx's caterpillar feeds on a wide range of plants and actually prefers shrubs like leatherleaf and *Spiraea*. Most sphinx caterpillars have different color forms, typically brown or green, and are called hornworms because of the soft spine-like structure located at the tip of their abdomen. Certain species of hornworms are pests of tomatoes and other garden plants. Sphinx larvae usually pupate in the ground.

SPHINX Moth

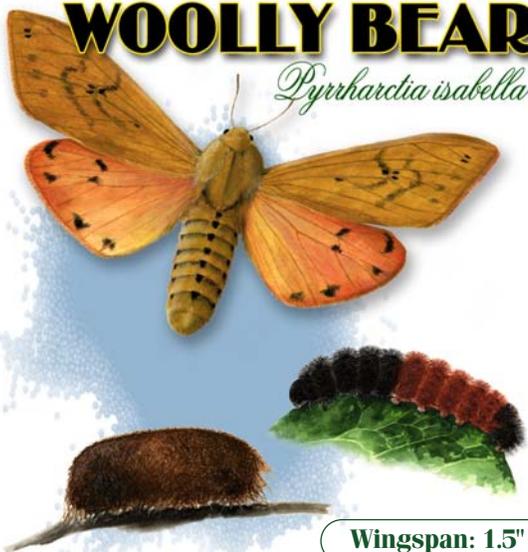
Sphinx gordius



Wingspan: 3" - 5"

WOOLLY BEAR

Pyrrharcia isabella



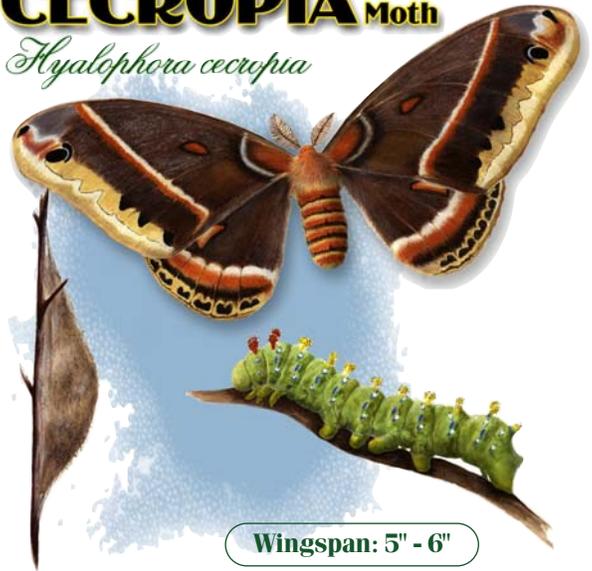
Wingspan: 1.5" - 2"

The larval stage of the Isabella moth, banded woolly bears are members of the tiger moth family. They are easily recognized by their bristly, two-toned coats, and can be seen crossing roads or grazing on low-lying vegetation, preferably dandelions and plantain. Like all tiger moth caterpillars, woolly bears curl up into balls when threatened or handled. They are one of the few species of butterfly and moth larvae known to overwinter as full-size caterpillars. As such, it is not unusual to spot woolly bears crawling around on a warm winter day. Active during the day, woolly bears are a familiar late-summer and fall sight to many who believe the caterpillars can predict the severity of the upcoming winter. The belief is that the narrower the reddish-brown center band, the colder and longer the winter; the wider the band, the milder the winter. Actually, the real determining factors for band size are past weather, crowding conditions, the quality of the foliage eaten and simple genetics. Adult Isabella moths are medium-sized, heavy-bodied moths with light tan/yellow-orange colored wings. Nocturnal, you are most likely to see them flying around your house lights.

New York's largest moth, the cecropia can measure six inches from wingtip to wingtip and belongs to the group of moths known as giant silk moths. Like all giant silk moths, cecropia adults have no functioning mouthparts, so they don't eat. Instead, they survive on fatty reserves they accumulate during the caterpillar stage. Cecropia caterpillars eat a wide variety of trees and shrubs and become quite large, about the size of a man's thumb. When fully grown, the caterpillars spin tough, fibrous, silky cocoons where they spend the winter as pupae. Cocoons are usually located on twigs a few feet off the ground. Adults emerge in the spring. At this time, mature females release pheromones to attract males. Males have large, feathery, ultra-sensitive antennae that enable them to track the pheromones from as far away as two miles. After mating, females lay their eggs on a variety of tree species.

CECROPIA Moth

Hyalophora cecropia



Wingspan: 5" - 6"

GYPSY Moth

Lymantria dispar



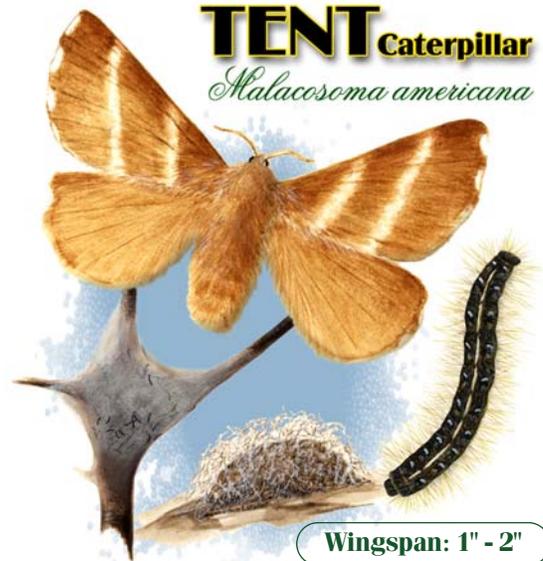
Wingspan: 1" - 2"

The gypsy moth is a type of tussock moth native to Europe. Adult males are dark and good fliers; females are light with black markings and do not fly. Like all tussock moths, gypsy moth caterpillars have distinct hair tufts on their bodies. If handled, these body hairs can sometimes cause an irritating skin rash. The gypsy moth is a European native whose caterpillar often does a great deal of damage to forest trees in the Eastern United States. It was intentionally bred in the US by an amateur silviculturist trying to develop a strain of silk-producing caterpillars. Its accidental escape was not considered to be of any importance until it was too late. Gypsy moth caterpillars eat tree leaves and during an outbreak the caterpillars can quickly defoliate large tracts of forest. Outbreaks usually occur in cycles of 8-9 years. Unfortunately, attempts to eradicate this forest pest have contributed to the decline of hundreds of species of native moths and butterflies.

One of several species of tent caterpillars, the eastern tent caterpillar is the species known for spinning silken "tents" in cherry trees across the Eastern United States, including New York State. In the spring, tent caterpillar eggs hatch and the larvae group together to weave communal nests in tree branches. The tents are only used for shelter. At night, the caterpillars leave the tent to feed on newly forming leaves. Apple and cherry trees are preferred foods, but tent caterpillars will eat other related tree species as well. They can completely defoliate an entire tree in a few weeks. Tent caterpillars retreat inside the tent during the day to avoid being eaten by birds and other predators. During late May to early June, mature caterpillars permanently abandon the nests and begin to wander. This is partly to seek out fresh leaves, but also to find suitable protected sites to form cocoons and pupate. Adults emerge approximately three weeks later to mate and lay eggs. Eggs are deposited in masses around the twigs of their food trees. The adult moths are medium-sized, with a yellowish-brown, hairy body. They are active at night.

TENT Caterpillar

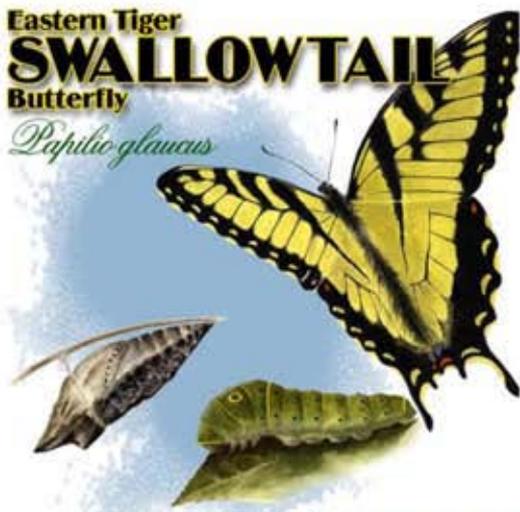
Malacosoma americana



Wingspan: 1" - 2"

Eastern Tiger
SWALLOWTAIL
Butterfly

Papilio glaucus



Wingspan: 3.5" - 5"

Some of our largest and most colorful butterflies, swallowtails get their name from the tail-like elongation of the hind wing. In New York, the eastern tiger swallowtail is the species most often encountered by people. It prefers open areas, but can often be observed "mudpuddling" by the dozens at road and stream-side seeps. The adults are drawn to these areas to collect the sodium (salt) ions that accumulate on the water's surface. Since swallowtails feed on plant nectar where sodium is in short supply, they seek out sodium-rich areas. Swallowtail caterpillars feed on a variety of tree species, especially birch, alder and cherry. To discourage predators, these caterpillars can release a noxious odor from a gland in their prothorax (the portion of the middle section of the body closest to the head).



LUNA Moth
Actias luna

Wingspan: 4" - 5"

A large, beautiful, light green moth, the luna is only found in North America. Thought to be a rarity, it is actually quite common in New York State. It thrives in areas where hickories dominate, but also does well in birch stands. Nocturnal, it is readily attracted to ultra-violet light (such as a "bug zapper"), and is most often seen near a porch light or outside a lighted window. The luna is a member of the giant silk moth family, and is striking in appearance with two long "tails"—one on each hind wing. Like its cousin the cecropia, the adult luna lacks active mouth parts and so does not feed. The luna caterpillar is large, fat and green with a yellow stripe on each side. It eats leaves from a wide variety of tree and shrub species. The caterpillar spins a thin cocoon, which may incorporate a leaf for camouflage.

Is that a **BUTTERFLY** or a **MOTH**?

There is no simple foolproof way to distinguish between butterflies and moths. One popular notion is that moths are duller than butterflies. Unfortunately, this is not a reliable method of distinguishing between the two since there are some very bright moths and some dull butterflies. However, while telling the two apart can be tricky, as a general rule butterflies and moths can be distinguished from each other by looking at the following four items: antenna shape, how their wings look at rest, wing color, and the time of day you see them.

Wing Color - Many butterflies are brightly colored. Many moths are drab or dull shades of brown.

Wings at Rest - Butterfly wings fold upright above their bodies. Moth wings often stretch out flat or fold back over their bodies.

Antennae Shape - Butterflies have long, thin, knob-tipped antennae. Moth antennae are feathery or tapered.

Time of Day - Butterflies are active by day (diurnal). Many moths move about at night (nocturnal).

