



Integrated Pest Management

CATERPILLARS IN YOUR YARD & GARDEN

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CONTENTS

Life cycle & key morphological features . . .	3
Royal moths & silkworm moths	4
Hornworms	6
Swallowtails	8
Tussock moths	10
Tiger moths	11
Slug caterpillars	12
Puss caterpillars	13
Cutworms, armyworms, underwings & dagger moths	13
Whites & sulphurs	16
Tent caterpillars	16
Brush-footed butterflies, fritillaries & wood nymphs	17
Prominents and oakworms	18
Loopers & cankerworms	19
Milkweed butterflies	20
Skippers	20
Bagworms	20
Snout and grass moths	21
Sawflies	21
Index of species	23
For further information	23

CATERPILLARS IN YOUR YARD & GARDEN

Some of the most easily observed insects in our backyards and gardens are caterpillars. Because they cannot fly or run away, we can approach and observe closely the behavior of these immature insects. Many children (and adults too) are intrigued by the discovery of a caterpillar of unusual size, color or body shape.

The purpose of this pictorial guide is to provide basic characteristics in identifying many of the caterpillars commonly encountered in our yards and gardens. This information would be particularly useful to those interested in butterfly gardening and conservation. Most of the caterpillar species described in this manual are not considered pests; however, some species may cause serious damage to many tree, shrub, flower and vegetable plants. University of Missouri Extension publications on the management of some of these pest species are referenced in the following pages.

LIFE CYCLE & KEY MORPHOLOGICAL FEATURES

Most commonly encountered caterpillars are the immature stages of butterflies and moths, although the immature stages of some species of sawflies (primitive, nonstinging wasps) are also caterpillar-like in appearance. Such insects undergo a complete metamorphosis, with four general life stages: egg, larva, pupa and adult. The larva (or caterpillar) stage is often referred to as the “feeding” stage, a period in the insect’s development when

it is actively feeding and increasing its size and weight at a staggering rate. During this time of intense feeding activity, the caterpillar will go through a series of molts where its exoskeleton or integument is shed at periodic intervals. This allows the caterpillar to grow. Caterpillars will shed their exoskeleton three to nine (typically five) times. Not only will the size of the caterpillar increase between molts, but the caterpillar’s color and appearance may also change (usually slightly, but sometimes drastically). At the final molt the caterpillar develops (pupates) into the nonfeeding, quiescent pupa or “transformation” stage from which the winged adult will eventually emerge. Most butterflies and moths survive the harsh winter months as a full-grown caterpillar or pupa, often within a tough silken cocoon that the caterpillar spins around itself before it pupates.

The overall body shape of a caterpillar is elongate and cylindrical with a well-developed *head*. The mouthparts are of the chewing type. Behind the head is the *thorax*, a three-segmented region (pro-, meso-, and meta-), each segment containing a pair of (true) legs. The *abdomen* is typically 10-segmented, with a pair of *prolegs* on segments 3, 4, 5, 6 and 10. However, the number of prolegs on sawfly caterpillars is always more than five pairs. Prolegs are found on the insect only during the caterpillar stage and are used to help the insect hold on to the host plant. Sometimes prominently visible on each side of the caterpillar’s body, between the meso- and metathoracic and abdominal segments, are respiratory openings called *spiracles*. The surface of the caterpillar’s body may be smooth or densely covered with *setae* (hairlike projections), or it may be covered with small to large spines or hornlike projections (Figure 1).

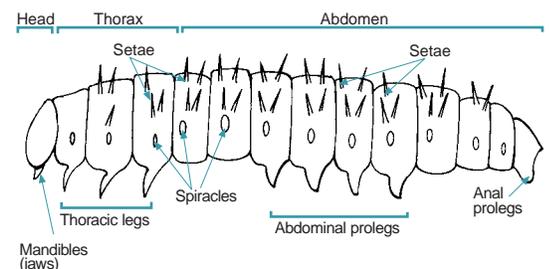


Figure 1. Caterpillar morphology.

Royal moths & silkworm moths

Family Saturniidae

The Saturniidae family includes many of the largest and most colorful moths in North America and the world. These large caterpillar species are usually not considered

pests. Although a single individual can consume relatively large amounts of foliage, their numbers rarely reach levels that would warrant control. But there are a few species that can do significant damage to many forest tree species. Upon completing their larval development, most saturniid caterpillars will pupate in large, tough silken cocoons usually attached to twigs or leaves or found on the ground. Many species have only one generation per year.

Polyphemus moth
(*Antheraea polyphemus*)

Present: May–October

Generations per year: Multiple

Full-grown caterpillars are nearly 3 inches long and are bright green with a brown head. On each angular body segment are six yellow-orange tubercles with small bristles. On most abdominal segments a yellow line runs through the brown spiracle and connects the first and second tubercles found on each side of the body. Common host plants include hickory, maple, hazelnut, oak, ash, walnut, sycamore, butternut, willow, elm, hawthorn, basswood and birch.



Polyphemus moth

Hickory horned devil
(*Citheronia regalis*)

Present: July–October

Generations per year: 2

This fierce-looking caterpillar is the immature stage of the regal moth. Full-grown larvae are dull green and can reach lengths of 4 to 5 inches. On the thoracic segments behind the head are long, stout, orange and black spines or “horns.” The longest of these horns are found on the second and third thoracic segments. Six smaller black spines are found on each abdominal segment. Host plants include hickory, walnut, butternut, sumac, persimmon, sweetgum, ash and sycamore.



Hickory horned devil

Photo by Bruce Barrett

Imperial moth
(*Eacles imperialis*)

Present: June–August

Generations per year: 2

The body color varies from light green to dark green to reddish brown. Full-grown larvae reach lengths of 4 inches. The head is usually yellow-orange. Four short horns are found on the second and third thoracic segments and on the last two abdominal segments. The rest of the body is sparsely covered with long, white hairs. The round-oval spiracles on the sides of each abdominal segment are conspicuous. They are white-yellow outlined in black. Common host plants include oaks, sweetgum, maple, hickory, sassafras, elm and sycamore.



Imperial moth



Io moth

The entire body of this caterpillar is covered with clusters of pale green, black-tipped, branched spines that are very irritating when they come in contact with the skin. These whorls of spines arise from small tubercles. Full-grown larvae are about 2–3 inches long. The body is pale green except for white and reddish brown stripes running the length of the abdomen and associated with the spiracles. The young caterpillars are usually gregarious, but as they grow they become solitary. Common host plants include maple, sassafras, oak, hickory, elm, apple, beech, cherry, black locust, mulberry, dogwood, sycamore, and even corn and other grasses.

Io moth
(*Automeris io*)

Present: July–October

Generations per year: 2



Photo by Bruce Barrett

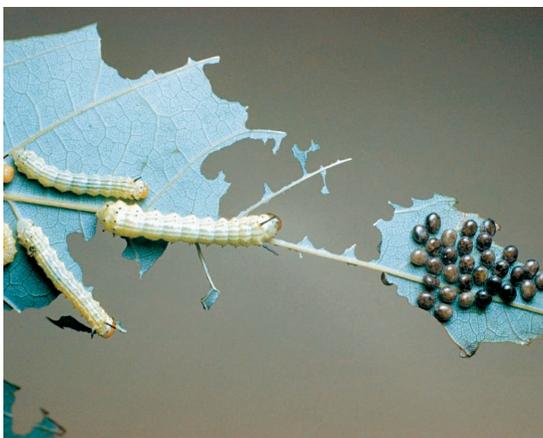
Cecropia moth

Full-grown caterpillars are 3–4 inches long. The most distinguishing feature of this caterpillar is the prominent “knobs” arising from the pea-green body. On two of the thoracic segments is a pair of orange-red knobs arising dorsally. Each knob is covered with several small black spines or tubercles. On each abdominal segment the dorsal pair of knobs is smaller and yellow in color. Small black bristles are also found on these knobs. On both lateral sides of the body, the knobs are light blue; the thoracic knobs are larger than the abdominal knobs. Both have small black bristles. Between these lateral pairs of blue knobs on each abdominal segment is a light blue, oval-shaped spiracle. The thoracic legs and abdominal prolegs are yellow-green. Common host plants in Missouri include apple, maple, walnut, willow, elm, poplar, ash, plum, box elder, cherry and lilac.

Cecropia moth
(*Hyalophora cecropia*)

Present: late May–August

Generations per year: 1



Greenstriped mapleworm

Full-grown caterpillars are 1.5–2 inches long with pale green bodies and red heads. Running the length of the body are alternating light and dark green lines. On the second thoracic segment is a prominent pair of black, slender horns. Small black spines are found on the tops and sides of each abdominal segment (spines are found only on sides on young caterpillars), and larger spines and a red side patch are found on the terminal segments of the abdomen. Common host plants include maples, and oaks that are growing in mixture with maple. Populations of this caterpillar may reach levels that can cause serious defoliation.

Greenstriped mapleworm
(*Dryocampa rubicunda*)

Present: late spring – late fall

Generations per year: 1–2

Hornworms

Family Sphingidae

Many caterpillar species in the Sphingidae family are referred to as “hornworms” because they have a conspicuous horn or spine on the top of the last abdominal segment. The bodies of these caterpillars are usually free of hairlike setae and smooth

except for shallow wrinkles in each segment. Adults are referred to as “sphinx,” “hawk,” or “hummingbird” moths. They are fast, strong fliers with a rapid wing beat and often hover in front of a flower to feed on the nectar in much the same manner as a hummingbird (and superficially they look like a hummingbird too!). The name “sphinx” is probably in reference to the sphinx-like position that some of the caterpillars assume when disturbed. Some common vegetable, tobacco and other plant pests belong to this family of caterpillars.

Tobacco hornworm
(*Manduca sexta*)

Tomato hornworm
(*Manduca quinquemaculata*)

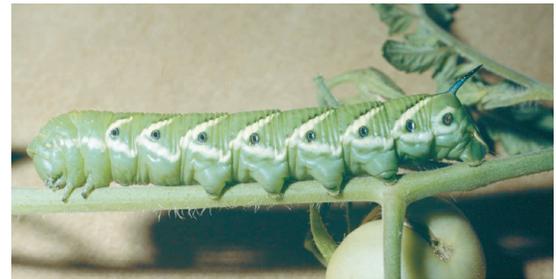
Present: June–September

Generations per year: 2+

The caterpillars of both species are similar in appearance in that full-grown larvae are about 3 inches long and the body color tends to be light green (although dark green to brown forms may occur). The tobacco hornworm has seven oblique white lines on each side of its body. The upper borders of these lines are outlined in black, and the prominent horn (spine) at the posterior end of the body is usually red. However, the lateral white lines on the tomato hornworm are V-shaped and point toward the head; the lines are not outlined in black, but the horn tends to be black. Both species feed primarily on tomato and tobacco, although they have been known to feed on eggplant, pepper and potato. For control options, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.



Tobacco hornworm



Tomato hornworm

Catalpa sphinx
(*Ceratomia catalpae*)

Present: early summer – early fall

Generations per year: multiple

There are two variable color forms, dark and light, of the caterpillars. Caterpillars with the dark form have a solid, broad, black stripe on the top of the body with yellow and white markings on the side of the body. The head and horn are also black. Light-formed individuals are pale yellow in color with patches of black on the top of the body, and the head and horn are yellow-orange. Full-grown caterpillars are about 3 inches long. The only host plant is the catalpa tree, and caterpillar numbers may reach such levels as to cause severe defoliation. For control options see MU publication G7270, *Insect Defoliators of Missouri Trees: Colony Feeders*.



Catalpa sphinx (dark form)



Catalpa sphinx (light form)



Smalleyed sphinx

The body surface texture of this 2.5-inch-long, pale to bright green caterpillar is very grainy (granulated). Oblique light-colored lines can be seen on the abdominal segments and dorsal patches of red are present both anteriorly and posteriorly. The spiracles are also red. Preferred host plants include various kinds of cherry.

Smalleyed sphinx
(*Paonias myops*)

Present: May – September

Generations per year:
multiple



Achemon sphinx

Also called the grape sphinx, developing and full-grown achemon sphinx caterpillars are green, yellow-brown or brown. The horn at the end of the body is long and slender and is lost with the last larval molt. On the sides of the abdomen are oblique white bars that appear to be partially subdivided unevenly into three sections; the spiracles are found within the lowest (and largest) compartment. Full-grown caterpillars are 2.5–3.5 inches long. Preferred host plants are grapes (wild and domesticated) and Virginia creeper.

Achemon sphinx
(*Eumorpha achemon*)

Present: early summer – fall

Generations per year: 1–2



Whitelined sphinx

This species is perhaps one of the most widely distributed sphingids in North America. Full-grown caterpillars are about 3 inches long with a green body. On the top of most body segments (about a head's width apart) is a pair of pale brown spots that are connected lengthwise down the body within a yellow line. The area above and below each brown spot is outlined in black. The spiracles on each side of the body are found within a yellow area outlined in black. Caterpillars feed on a wide range of host plants, a favorite being purslane, but they often prefer weeds. If weeds are not available, they will feed on such vegetables as tomato, lettuce, turnip, beet, watermelon and cantaloupe. Known fruit hosts include apple, pear, grape, currant and gooseberry.

Whitelined sphinx
(*Hyles lineata*)

Present: spring – early fall

Generations per year: 2

Clearwinged
sphinx
(*Hemaris diffinis*)

Present: April –
September

Generations per year: 2

The color forms for full-grown caterpillars (up to 2 inches long) appear to be pale green to light or dark brown. The body surface is covered with a light colored granulation. However, just behind the head (first thoracic segment) there is a transverse double row of large bright yellow granules going from one side of the body to the other. The spiracles are conspicuous and are outlined in black. The horn at the end of the body is long and slender with a black tip and a bright yellow base; the horn may be shed during development. There are no other markings (lines, patches, etc.) on the body. Known hosts include buckbrush or coral berry, honeysuckle, snowberry and horse gentian. Adult moths are sometimes called the *bumblebee sphinx moth* because of their appearance or the *snowberry clearwing*.



Clearwinged sphinx



Clearwinged sphinx

Swallowtails

Family Papilionidae

The caterpillars in this group are usually smooth-bodied and vary in color from green or yellow-orange with black markings to a color pattern that gives them the appearance of a bird dropping or the head of a vertebrate with conspicuous “eyes.” All caterpillar species

possess a scent gland called an *osmeterium* that is located just behind the head. When disturbed, this fleshy-looking, forked, orange-red gland is everted from its pouch and releases a disagreeable odor. Because the caterpillars are relatively large and very colorful, they too (with royal and silkworm caterpillars) are quite noticeable. Very few species would be considered important pests. Many adults from this family are colorful and beautiful medium-size to large butterflies. Their name is derived from the presence of tail-like projections on the hind wings.

Parsleyworm
(*Papilio
polyxenes*)

Present: May – October

Generations per year: 3

The color patterns of this caterpillar change dramatically as it grows older. Initially, the young caterpillar resembles a bird dropping — glossy black with a white saddle-like spot on the first and second abdominal segments. By the time the caterpillar is full-grown, it is primarily green, with a thin transverse black line at the anterior portion of each body segment. There is also a thick transverse black line in the middle of each body segment containing yellow-orange spots. Host plants include vegetables such as parsley, parsnip, carrots, and celery, and the herbs anise, dill and caraway, and many umbelliferous weed species. Adults are called the *black swallowtail butterfly*.



Parsleyworm

Photo by Bruce Barrett



Spicebush swallowtail

Young caterpillars look like bird droppings (similar to the parsleyworm). Full-grown caterpillars are about 1.5 inches long with the body being swollen at the third thoracic segment. The top half of the body is green (or bright orange), which then turns into a thin area of yellow containing the spiracles, and then the bottom half of the body (including legs) is reddish tan. On the third thoracic segment there is a pair of large yellow-orange spots outlined in black. Each of these yellow spots has a large black center and a smaller light-colored spot. These eye spots give the impression of being the large “pupiled eyes” of a vertebrate. On the first abdominal segment there is another pair of smaller yellow-orange spots outlined in black. However, these spots do not have a large black center or “pupil.” The rest of the abdominal segments each have six small, conspicuous blue spots. The primary host plants are spicebush, sassafras and magnolias.

Spicebush swallowtail
(*Papilio troilus*)

Present: May – October

Generations per year: 2–3



Orangedog

These caterpillars look like bird droppings throughout their development. Full-grown larvae are dark brown and white. The head has a white lateral collar that extends to the sides of the thorax. The third thoracic and first abdominal segments are swollen and arched with brown and black marbling. The third and fourth abdominal segments have a white saddle-like area that extends laterally. The last three abdominal segments are almost entirely white. Dorsally, from the thorax to the tip of the abdomen there are small, irregularly shaped blue spots. Primary host plants in the Midwest are the hoptree and pricklyash. The name “orangedog” comes from the fact that the caterpillar is a pest of citrus trees in the southern states. The adult is called the *giant swallowtail butterfly*.

Orangedog
(*Papilio cresphontes*)

Present: July – October

Generations per year: 2

Considered a pest? citrus



Zebra swallowtail

Full-grown caterpillars appear hump-backed with a swelling between the thorax and abdomen. Most body segments are ringed with transverse lines of yellow-white and green. The anterior part of the first abdominal segment has a thick black ring that extends partway down the sides. The preferred host plant is pawpaw.

Zebra swallowtail
(*Graphium marcellus*)

Present: May – November

Generations per year: 2–3

Tiger
swallowtail
(*Papilio glaucus*)

Present: May – October

Generations per year: 2–3

Full-grown caterpillars are green (darker on top and lighter near the legs) and about 1.5 inches long with an enlarged third thoracic segment. On the top of this segment is a pair of “eye spots,” areas of yellow outlined in black. Within each eye spot is a smaller light purple spot, also ringed in black, and a black line above it. At the posterior end of the first abdominal segment is a transverse yellow line. In the middle of each abdominal segment there is a transverse row of small bluish spots, and the last abdominal segment has a small yellow transverse ridge. Younger caterpillars will have a yellow patch on the top of the third and fourth abdominal segments; this patch is absent on full-grown individuals. Preferred host plants include hoptree, birch, tulip tree, ash, basswood, cherry, apple, willow and magnolia.



Tiger swallowtail

Tussock moths

Family Lymantriidae

Some of our most destructive forest pests are caterpillars from this family, which are often characterized as being very hairy. These hairs, often in a densely clumped “tussock” or a small or elongated brush (called a pencil) are

found arising in specific locations, patterns and colors; they can be stinging or irritating (urticating) when handled or touched by people with sensitive skin.

Whitemarked
tussock moth
(*Orgyia
leucostigma*)

Present: May – October

Generations per year: 2

Full-grown caterpillars are 1–1.5 inches long. Arising laterally on each side of the first thoracic segment (which is red) is a group (or pencil) of long black hairs that point forward past the red head. Similarly, a single group of backward-pointing, black hairs arises at the end of the abdomen. On top of the first four abdominal segments is a densely packed tuft of yellow or white hairs, and on the remaining abdominal segments is a longitudinal black line of short hairs bordered by yellow hairs. In the center of this black line on the sixth and seventh abdominal segments is a bright red spot. On each side of the body are tufts of white-yellow and black hairs arising from a row of tubercles. Host plants include many hardwoods and conifers, with preference to apple, basswood, elm, poplar and maples.



Whitemarked tussock moth

Photo by Bruce Barrett

Tiger moths

Family Arctiidae

Like the tussock moths in the family Lymantriidae, tiger moth caterpillars (often called woollybears) are covered entirely with dense clusters of tubercles from which arise short tufts of hairs or long hair “pen-

cils” of varying colors. The hairs on these caterpillars can be irritating when handled by individuals with sensitive skin.



Banded woollybear

This caterpillar is often called the “weather worm” because in folklore the width of its black bands indicates the severity of the coming winter. Full-grown caterpillars are a little over 1 inch long and are covered with tubercles from which arise stiff hairs of about equal length. Middle segments of the abdomen are covered with red-orange hairs and the anterior and posterior ends with black hairs. Hair color and pattern (band width) are highly variable; often as the caterpillar matures, black hairs (especially at the posterior end) are replaced with orange hairs. Host plants are mainly weeds and other noncrop plants such as dandelion, dock, aster, goldenrod, plantain and some grasses.

Banded woollybear
(*Pyrrharctia isabella*)

Present: spring; late summer – late fall

Generations per year: 1-2



Yellow woollybear

The body of this caterpillar is covered with small tubercles (often white or light colored) from which hairs of varying lengths and colors arise. Most of these tubercles contain some hairs that are almost twice the length of the other hairs in the tuft. The most common hair color is yellow, but orange-red to black variations exist. The body color is generally yellow, but it may vary from cream to light and dark brown. There is a dark line on both sides of the body, and the spiracles are white. Host plants include more than 100 vegetable, field crop, fruit, flower and weed species.

Yellow woollybear
(*Spilosoma virginica*)

Present: spring – fall

Generations per year: 2-3



Pale tussock moth

Full-grown caterpillars are about 1.5 inches long. Each body segment is densely covered with tubercles bearing tufts of short or long hairs (pencils) that are white, silver-gray or black. From the second thoracic segment there arises a pair of long black pencils and shorter white pencils that point forward, and from the third thoracic segment arises a pair of black and white pencils that usually point away from the body axis at right angles. At the rear of the body, two black pencils point backward. On top of the abdominal segments is a longitudinal row of dark gray tufts. Host plants include oak, willow, poplar, hickory, grape and hackberry. The adult is referred to as the *banded tussock moth*.

Pale tussock moth
(*Halysidota tessellaris*)

Present: early summer – fall

Generations per year: 2

Fall webworm
(*Hyphantria
cunea*)

Present: spring – fall

Generations per year: 2–3

Groups of these caterpillars are found inside silk webbing structures usually located at the tips of branches. During most of their development, caterpillars are found within the web feeding. Full-grown caterpillars, about 1 inch long, leave the web nest. The body, generally light colored, is covered with tubercles from which arise tufts of long light-colored hairs. On the top of the body are two longitudinal rows of conspicuous black tubercles, between which is often a dark longitudinal stripe. The sides of the body are light colored and have longitudinal rows of orange tubercles. The head is either orange-red or black. Host plants include more than 100 species of trees (forest and shade) and shrubs. For control options, see MU publication G7271, *Insect Defoliators of Missouri Trees: Web Producers*.



Fall webworm

Slug caterpillars

Family Limacodidae

Caterpillars of this group have reduced thoracic legs, lack abdominal legs (replaced by sucking discs), and move in a creeping fashion. They are 0.4–1 inch long and may be oddly shaped. The head is often hidden under the thorax, adding to their sluglike appearance. The

body ranges in color from dull to bright (green, yellow, orange, red and purple) and may be smooth or covered with elongated, stiff (sometimes poisonous) spines and urticating (stinging) hairs.

Hag moth
(*Phobetron
pithecium*)

Present: summer – fall

Generations per year: 1

Sometimes called the monkey slug, the full-grown caterpillar is brown, 0.5 inch long, and has nine lateral lobes or processes with urticating hairs. Some of these lobes protruding from the sides of the body are longer than others and are occasionally shed. Host plants include various forest trees and shrubs.



Hag moth

Stinging rose
caterpillar
(*Parasa
indetermina*)

Present: summer – fall

Generations per year: 1–2

The body of this brightly colored caterpillar, about 1 inch long, has alternating, longitudinal stripes of yellow and orange. On the top of the body is a longitudinal blue-purple stripe with thinner black lines outlining it. There are long, stout lobes with poisonous spines on the top and sides of the body. Host plants include oak and a variety of other forest trees and shrubs.



Stinging rose caterpillar

Photo by Bruce Barrett



Spiny oak slug

The overall body color is green with spots of yellow, orange and red (usually on the top). Both edges on the top side and the lower lateral sides are covered with stiff lobes containing stinging spines. Host plants include oak and a variety of other forest trees and shrubs.

Spiny oak slug
(*Euclea delphinii*)

Present: summer – fall

Generations per year: 1-2



Crinkled flannel moth

Caterpillars are covered with tufts of long, dense hairs, ranging in color from gray, orange and tan. The light-colored hairs form a crest along the top of the body. Underneath the coat of silky hairs are small tubercles containing urticating hairs that can cause severe irritation when handled improperly. Host plants include a variety of trees and shrubs, such as oak and sassafras.

Crinkled flannel moth
(*Lagoa crispata*)

Present: early summer – fall

Generations per year: 2

Noctuidae is the largest family in the order Lepidoptera. The body of the caterpillars ranges from smooth with very little hair to clothed with short or long hairs; coloration varies from dull-colored to bright stripes or patches to cryptic. Although many species are found feeding on the foliage of forest or shade trees they are not considered serious pests.

Cutworms, armyworms, underwings & dagger moths

Family Noctuidae

However, several species are damaging to many field, vegetable and fruit crops.



Variegated cutworm

Full-grown caterpillars are robust-looking and range in length from 1.5 to 2 inches. Body color, from the top and down to the spiracles on the sides, is a mottled brown-gray to gray-black. On top of each of the first four abdominal segments is a conspicuous yellow spot. The top of the last abdominal segment is tan with a less distinct black “W” mark. Below the black spiracles is an orange-brown line followed by a light-tan ventral side. Host plants include a wide range of vegetable, field, fruit and flower crops and weeds. For control options in vegetables, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.

Variegated cutworm
(*Peridroma saucia*)

Present: late spring – early summer

Generations per year: 2-4

Stalk borer
(*Papaipema nebris*)

Present: May – August

Generations per year: 1

As the name implies, these caterpillars feed within stems of their host plants and cause the infested area to wilt and become discolored. The caterpillars are not readily visible unless without dissection of an infested plant. Full-grown caterpillars are a little over 1 inch in length. The head is yellow and the body is brown with white longitudinal stripes on the top and sides. However, there is a large brown spot on the first four abdominal segments that encircles the entire body and interrupts the white stripes. The body is relatively smooth. Host plants include more than 200 field, vegetable, flower and fruit crops and several species of weeds. For control options in vegetables, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.



Stalk borer

Tomato fruitworm
Corn earworm
(*Helicoverpa zea*)

Present: mid-June

Generations per year: 2

Other names for this caterpillar include sorghum headworm and cotton bollworm. Full-grown caterpillars are 1 inch long. The head is usually light brown while the body varies from pink to yellow-green to brown. Overall, the body has alternating longitudinal light and dark stripes with a yellow band below the spiracles. Scattered on the body are small, black tubercles bearing small hairs (or spines), giving the caterpillar a rough texture. Host plants include a variety of vegetables, fruits, and weeds, although this species is a serious pest of tomatoes, corn, cotton, soybeans and grain sorghum. Most populations enter Missouri as migrating swarms from the southern United States. For control options in vegetables, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.



Tomato fruitworm



Corn earworm

Black cutworm
(*Agrotis ipsilon*)

Present: late spring – fall

Generations per year: 1-3

Full-grown caterpillars are robust-looking and nearly 2 inches long. The body is often uniformly colored light gray to brown to black, although sometimes there appears to be a light, indistinct longitudinal dorsal stripe. The ventral surface is light-colored. The body surface is virtually hairless, but there are numerous small, black tubercles. Host plants include a variety of vegetable and field crops (often a serious pest of corn and cotton), and some deciduous trees and shrubs, and several weeds and grasses. Heavy adult migration occurs in April and May. For control options in vegetables, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.



Black cutworm



Cabbage looper

Full-grown caterpillars are about 1.5 inches long and uniformly green. However, there may be a faint, longitudinal white stripe on the lateral sides and several narrow lines dorsally. From the head, the girth of the body gradually increases toward the posterior end, and there are only two pairs of mid-abdominal prolegs. Host plants include a large variety of vegetable (often a serious pest of crucifers), flower and field crops and broadleaf weeds. For control options in vegetables, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.

Cabbage looper
(*Trichoplusia ni*)

Present: late spring – fall
Generations per year: 2–3



Armyworm

This pest is often referred to as the “true armyworm” to distinguish it from other armyworm species. Full-grown caterpillars are about 1.5 inches long. The head is brown and covered with dark netlike markings. Body color varies from pale-green to gray-green to yellowish brown. On each side is a longitudinal yellow-brown stripe, bordered dorsally with a thin white line. The ventral side of the body is light in color. The abdominal prolegs have a dark stripe. Caterpillars are usually active at night. Host plants include grain and grass crops, wild and weed grasses, vegetable and field crops.

Armyworm
(*Pseudaletia unipunctata*)

Present: early summer – fall
Generations per year: 3



Eight-spotted forester

The body color of full-grown caterpillars consists of transverse, alternating narrow black and white lines. On each abdominal segment there is also a wider orange band. Associated with these orange bands are numerous, small black tubercles from which arises a single, long white hair. The head is orange with black spots. Host plants are grape and Virginia creeper.

Eight-spotted forester
(*Alypia octomaculata*)

Present: spring – early fall
Generations per year: 1–2



Green cloverworm

Caterpillars are green with a longitudinal, white line on each side of the body. These white lines become faded when the caterpillars are full-grown (a little over 1 inch long). A unique characteristic of this species is that the caterpillar has only three mid-abdominal prolegs. Hosts consist of only legume plants such as soybean and alfalfa (preferred hosts) as well as bean, cowpea, pea and clover plants.

Green cloverworm
(*Hypena scabra*)

Present: summer – fall
Generations per year: 3

Whites & sulphurs

Family Pieridae

Caterpillars from this group are usually green and slender and lack tubercles or other projections. The body is often

covered with short, fine hairs, giving it a velvety appearance. Some adult species are known to travel great distances in mass migrations.

Imported
cabbageworm
(*Pieris rapae*)

Present: early spring –
summer

Generations per year:
multiple

The body of a full-grown caterpillar is a little over 1 inch long and uniformly green with a velvety texture. On the top of the body in the center and running lengthwise is a thin yellow line. A narrow, broken line of yellow spots or dashes may also be found on the sides. Primary hosts are cruciferous vegetables such as cabbage, broccoli, brussels sprouts, cauliflower and kale. For control options in vegetables, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.



Imported cabbageworm

Tent caterpillars

Family Lasiocampidae

Many caterpillar species of this group construct a thick, silken “tent” in the crotches of branches or small limbs on

the host tree. The larvae do not feed inside the silken structure as the does the fall webworm. Rather, during the day, they leave the protective silk nest and feed on the foliage of neighboring limbs. Several species are important pests of forest and shade trees.

Eastern tent
caterpillar
(*Malacosoma
americanum*)

Present: early spring –
June

Generations per year: 1

Full-grown caterpillars are mottled with a middorsal longitudinal, white stripe outlined by a narrow black line and bordered by a concentration of orange, wavy lines. Laterally, the body may have orange stripes, but there are blue and white markings on each segment just above the spiracles. Arising from the sides of the body are light-brown hairs. Host plants include apple, cherry, peach and plum, with serious damage often occurring on wild tree hosts. For control options, see MU publication G7271, *Insect Defoliators of Missouri Trees: Web Producers*.



Eastern tent caterpillar

Caterpillars in the Nymphalidae family have variable color patterns ranging from longitudinal stripes to mimicking a bird dropping. Most species are covered with prominent spines and tubercles.



Viceroy



Red-spotted purple



Hackberry emperor



Variegated fritillary

Brush-footed butterflies, fritillaries & wood nymphs

Family Nymphalidae

The full-grown caterpillar is about 1.5 inches long with white mottled patches of white-pink and green-brown. Arising from the second thoracic segment is a pair of large, brown spines or horns that are barbed. A pair of much smaller barbed tubercles, white to light green, is found on the other body segments. Host plants include willow, elm, poplar, oak, aspen and wild cherry.

Viceroy
(*Limenitis archippus*)

Present: early summer – fall

Generations per year: 2

The full-grown caterpillar is about 1.5 inches long with white, green, yellow-brown and brown patches mottled together to look like a bird dropping. Arising from the second thoracic segment is a pair of large, brown spines or horns that are barbed. From the top of the second abdominal segment is a pair of large, light-colored swellings or bumps. Host plants include willow, apple, wild cherry, wild crab, elm, oak and other tree and shrub species.

Red-spotted purple
(*Limenitis arthemis*)

Present: early summer – fall

Generations per year: 2

Full-grown caterpillars are 1 to 1.5 inches long. The body is yellow to green with longitudinal to oblique white-yellow stripes on the sides of most body segments. Two barbed horns arise from the green head and a pair of pointed projections from the end of the body. From the base of each horn and running the length of the granulose body to the abdominal tips is a white-yellow line bordered by shades of dark green. Between these parallel lines in the center of the back is an inconspicuous yellow line. The host plant is hackberry (occasionally a serious pest).

Hackberry emperor
(*Asterocampa celtis*)

Present: early summer – fall

Generations per year: 2

The full-grown, salmon-red caterpillar is about 1.25 inches long with a pair of prominent, black-knobbed horns arising from the first thoracic segment, and numerous small black spines are found over the body. Four longitudinal, fragmented white stripes run the length of the body. Host plants include flowers of the *Viola* and *Passiflora* species.

Variegated fritillary
(*Euptoieta claudia*)

Present: June – October

Generations per year: multiple

Prominents & oakworms

Family Notodontidae

Caterpillars in this group have variable color patterns and body texture. Some species are smooth with fleshy humps or projections while others are hairy. Some are cryptically

colored, mimicking the edge of a partially eaten, distorted leaf, while others are brightly colored and conspicuous. In some species, when the caterpillars are disturbed, they raise both ends of the body, holding onto the substrate with the four mid-abdominal prolegs and exposing glands that produce irritating acidic chemicals to ward off potential attackers. Caterpillars exhibit both solitary and gregarious behavior. Host plants include a wide variety of trees and shrubs.

Walnut caterpillar
(*Datana integerrima*)

Present: May – September

Generations per year: 1-2

Developing caterpillars, 0.5 to 1.5 inches long, have black heads and dark red bodies with several longitudinal white stripes. They are gregarious, feeding and molting together. Often a large mass of hairy, shed skins can be seen attached to a branch or the trunk. Full-grown larvae, no longer gregarious, are nearly 2 inches long and have a black body covered with long, white hairs. Preferred host plants include walnut, butternut, pecan and hickory. The walnut caterpillar is often a serious pest of walnut. For control options, see MU publication G7270, *Insect Defoliators of Missouri Trees: Colony Feeders*.



Walnut caterpillar, red phase



Walnut caterpillar, black phase

Photos by Bruce Barrett

Yellownecked caterpillar
(*Datana ministra*)

Present: late July – September

Generations per year: 1

Full-grown larvae, nearly 2 inches long, have black heads and an orange-yellow prothorax (“neck” region). The body is black with several longitudinal white stripes, and is lightly covered with long, white hairs. The lateral sides of the thoracic legs and the abdominal prolegs are orange. Host plants include a variety of fruit, shade and forest trees, especially apple and oak. For control options, see MU publication G7270, *Insect Defoliators of Missouri Trees: Colony Feeders*.



Yellownecked caterpillar

Poplar tentmaker
(*Clostera inclusa*)

Present: spring – fall

Generations per year: 2

Groups of these caterpillars are found within “tents” of leaves tied together and lined with silk. Full-grown caterpillars, about 1.5 inches long, are mottled brown-black with four distinct longitudinal yellow lines on top of the body, and a bright yellow longitudinal line on each side of the body. On top of the first and eighth abdominal segments is a black tubercle. The body is also sparsely covered with light hairs. Preferred host plants are poplar and willow. For control options, see MU publication G7271, *Insect Defoliators of Missouri Trees: Web Producers*.



Poplar tentmaker

Photo by Bruce Barrett



Unicorn caterpillar

The head of the caterpillar is mottled brown, and the body has longitudinal shades of tan-brown, except on the second and third thoracic segments, which are bright green. On the first abdominal segment is a prominent hornlike protuberance (hence the common name), and a smaller protuberance on the eighth abdominal segment. Host plants include apple, elm, aspen, willow, hickory and other broadleaf trees and shrubs.

Unicorn caterpillar
(*Schizura unicornis*)

Present: summer – fall

Generations per year: 1



Gray furcula

The caterpillar has a brown head and two small, brown-barbed tubercles or “horns” on the first thoracic segment. The body is green except for a brown saddle-shaped area on the abdomen. The anal prolegs are modified into a pair of long, narrow tail-like projections. Host plants are willow and poplar.

Gray furcula
(*Furcula cinerea*)

Present: spring – fall

Generations per year: 2

Loopers & cankerworms

Family Geometridae

Caterpillars in the Geometridae family characteristically have only two pairs of prolegs (one mid-abdominal pair and one anal pair). They travel by means of a looping

movement rather than a crawling action. The color patterns of many species mimic the foliage, stems or twigs of their preferred host plant.



Linden looper

Full-grown larvae are nearly 1.5 inches long and have rusty-brown heads. The body is yellow, and on the dorsal side there are several (up to 10) thin, wavy black lines running longitudinally. The sides of the body surrounding the spiracles are bright yellow and the ventral side is pale. Preferred host plants include maple, oak, hickory, elm, birch and apple.

Linden looper
(*Erannis tiliaria*)

Present: late spring – summer

Generations per year: 1

Milkweed butterflies

Family Danaidae

Monarch
(*Danaus plexippus*)

Present: summer months

Generations per year:
multiple

Full-grown caterpillars are 2 inches long and colored with alternating, transverse white, black and yellow stripes. There is a pair of fleshy tentacles at both the anterior and the posterior ends. The mid-abdominal prolegs are black with lateral patches of white. Body texture is smooth and without hair. Host plants are milkweed species.



Monarch

Skippers

Family Hesperiiidae

Silverspotted skipper
(*Epargyreus clarus*)

Present: summer – fall

Generations per year: 2-3

The head of this nearly 2-inch-long caterpillar is rusty-brown with a pair of large, conspicuous orange “eye spots” above the mouthparts. The first thoracic segment (“neck” region) is constricted and red-brown. The rest of the body is yellow-green with transverse narrow dark lines. Host plants are black locust, honey locust and wisteria.



Silverspotted skipper

Bagworms

Family Psychidae

Bagworm
(*Thyridopteryx ephemeraeformis*)

Present: early June – August

Generations per year: 1

Caterpillars are found within conical, silk-lined bags or cases they construct from bits and pieces of the host plant. The bag is carried about as the caterpillar feeds and is enlarged as the caterpillar grows. The full-grown larva is about 1 inch long, and the head and thoracic regions have a mottled brown appearance. It is difficult to pull the caterpillar from its bag without damaging its body. Host plants include both conifer and hardwood plants, with preference for white and red cedar. This caterpillar is an important pest of many shade trees and ornamental shrubs. For control options, see MU publication G7250, *The Bagworm in Missouri*.



Bagworm



Photo by Bruce Barrett

Snout & grass moths

Family Crambidae



Garden webworm



Pickleworm

Most species in the order Hymenoptera are beneficial to agriculture as either important pollinators or as biological control agents that prey upon pestiferous insects. However, the hymenopteran group known as “sawflies” feed upon plant tissue and at times can cause serious defoliation. While adult sawflies resemble a wasp or a bee, immature sawflies are caterpillar-like, resembling the immature stage of moths or butterflies. A good diagnostic characteristic that can be used to distinguish between lepidopteran and hymenopteran “caterpillars” is the number of prolegs on the abdomen. Moth and



Elm sawfly

Full-grown caterpillars are 0.5 to 0.75 inch long and have a yellow-brown head and a yellow-green to green body. The body is characterized by distinct black spots on each segment, six spots occurring on each abdominal segment, and a pale-green middorsal stripe. Host plants include a variety of vegetables, field crops, and weeds. Severely damaged plants are covered with silken webbing.

Young caterpillars are light colored and covered with several black spots on each body segment. Full-grown caterpillars (0.75 to 1 inch long) lack the dark spots, and the body color can vary, depending on the host plant, from white to orange to green. Host plants are limited to cucurbits, such as cucumber, watermelon, muskmelon, and squash (summer and winter). Pickleworm caterpillars often cause serious damage. For control options, see MU publication M163, *Managing Insect Pests in the Home Vegetable Garden*.

Garden webworm
(*Achyra rantalis*)

Present: late spring – fall

Generations per year: 2–3

Pickleworm
(*Diaphania nitidalis*)

Present: summer – fall

Generations per year: 2–3

Sawflies

Order Hymenoptera

butterfly caterpillars usually have five pairs of prolegs, four pairs on the mid-abdomen and one pair at the end of the abdomen (referred to as anal prolegs). In contrast, sawfly caterpillars typically have six or more pairs of prolegs on the abdomen. Sawfly larvae can cause significant damage to many forest trees (conifer and broadleaf) and landscape trees and shrubs.

This is the largest species of sawfly found in North America, with full-grown larvae 1.5 to 2 inches long. The entire body is light yellow to light green in color, except for a middorsal black stripe. The spiracles are black. When not feeding, the caterpillar will often lie coiled. Preferred host plants are elm and willow, although birch, maple and poplar are occasionally attacked.

Elm sawfly
(*Cimbex americana*)

Present: summer – fall

Generations per year: 1

European
pine sawfly
(*Neodiprion
sertifer*)

Present: spring – summer

Generations per year: 1

Full-grown caterpillars are nearly 1 inch long. They have shiny black heads and green and black thoracic legs, and the body has longitudinal (and alternating) pale green and gray-green stripes. There are eight pairs of white prolegs. The caterpillars are gregarious and primarily feed on the old needles (previous year's foliage). Preferred host plants are Scotch, red, jack and Swiss mountain pines, although white, Austrian and ponderosa pines are also attacked.



Photo by Bruce Barrett

European pine sawfly

Dusty birch
sawfly
(*Croesus
latitarsus*)

Present: summer – fall

Generations per year: 2-3

Full-grown caterpillars are nearly 1 inch long. They have black heads and a yellow-green body with longitudinal rows of black spots (including a row beneath the spiracles). There are seven pairs of yellow-green prolegs. The caterpillars are gregarious and prefer to feed on birch (various species).



Photo by Bruce Barrett

Dusty birch sawfly

Roseslug
(*Endelomyia
aethiops*)

Present: summer

Generations per year: 1

Full-grown caterpillars are about 0.5 inch long. The head is yellow-orange and the body yellow-green. The caterpillars skeletonize the foliage by feeding on the upper layers of the leaf, leaving behind the lower epidermal layer. Host plants are only *Rosa* species.



Roseslug

Index of species

Achemon sphinx	7	Green cloverworm	15	Smalleyed sphinx	7
Armyworm	15	Greenstriped mapleworm	5	Spicebush swallowtail	9
Bagworm	20	Hackberry emperor	17	Spiny oak slug	13
Banded woollybear	11	Hag moth	12	Stalk borer	14
Black cutworm	14	Hickory horned devil	4	Stinging rose caterpillar	12
Cabbage looper	15	Imperial moth	4	Tiger swallowtail	10
Catalpa sphinx	6	Imported cabbageworm	16	Tobacco hornworm	6
Cecropia moth	5	Io moth	5	Tomato fruitworm	14
Clearwinged sphinx	8	Linden looper	19	Tomato hornworm	6
Corn earworm	14	Monarch	20	Unicorn caterpillar	19
Crinkled flannel moth	13	Orangedog	9	Variigated cutworm	13
Dusty birch sawfly	22	Pale tussock moth	11	Variigated fritillary	17
Eastern tent caterpillar	16	Parsleyworm	8	Viceroy	17
Eight-spotted forester	15	Pickleworm	21	Walnut caterpillar	18
Elm sawfly	21	Polyphemus moth	4	Whiteline sphinx	7
European pine sawfly	22	Poplar tentmaker	18	Whitemarked tussock moth	10
Fall webworm	12	Red-spotted purple	17	Yellow woollybear	11
Garden webworm	21	Roseslug	22	Yellownecked caterpillar	18
Gray furcula	19	Silverspotted skipper	20	Zebra swallowtail	9

For further information

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