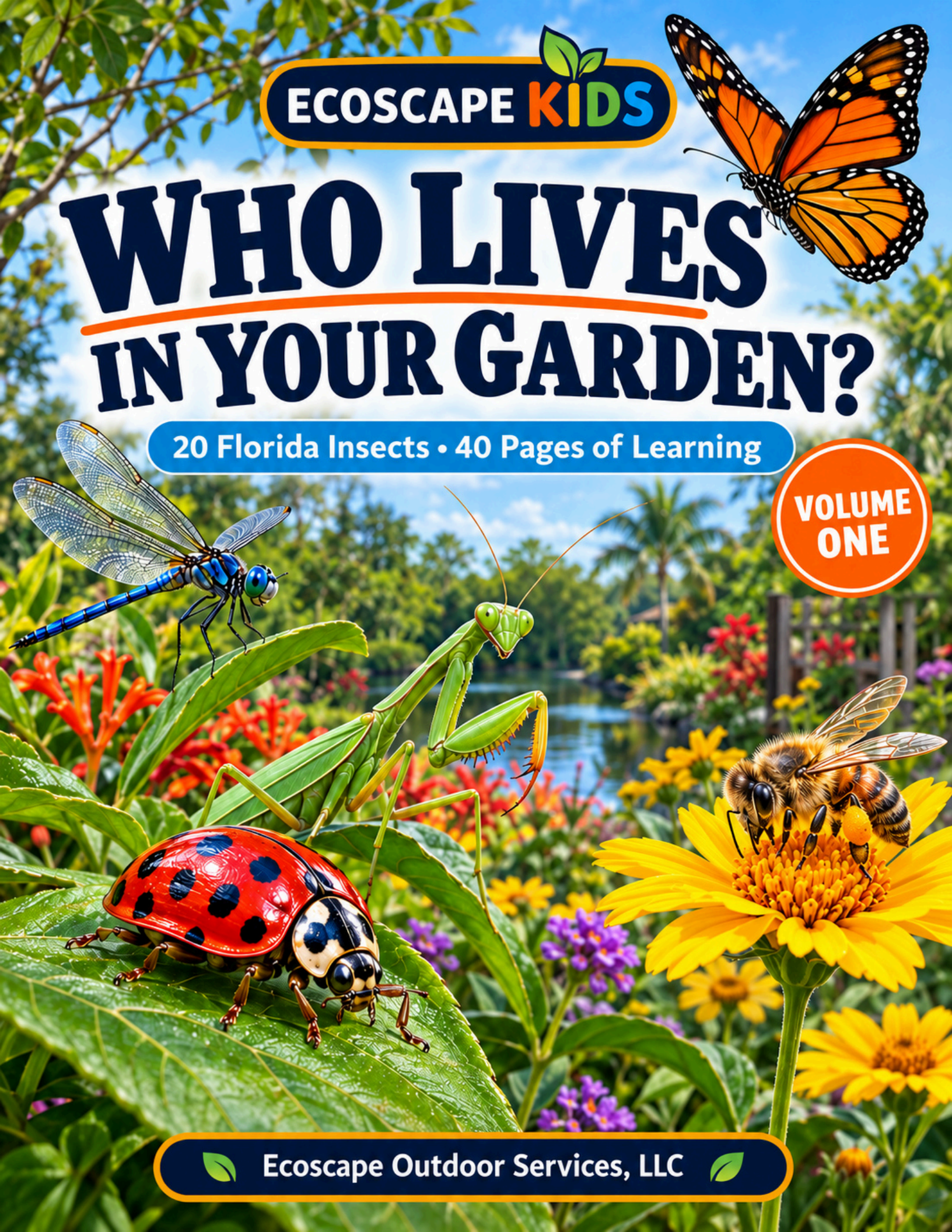

ECOSCAPE KIDS
WHO LIVES IN YOUR GARDEN?
20 Florida Insects • 40 Pages of Learning
VOLUME ONE
Ecoscape Outdoor Services, LLC

ECOSCAPE KIDS

START HERE

A GARDEN FULL OF INSECTS

A guide for curious readers ages 8–12

Twenty insects. Two pages each. Many ways to live.

WHAT MAKES AN INSECT?

Adults have three main body regions: head, thorax, and abdomen. Six legs attach to the thorax. Antennae sense the surroundings. Many adults have wings, but wings are not required to be an insect.

HEAD

Eyes, antennae, and mouthparts sense the world and bring in food.

THORAX

The middle region supports the six legs and, in winged adults, the wings.

ABDOMEN

The rear region contains much of the digestive and reproductive systems.

TWO ROUTES TO ADULTHOOD

Complete metamorphosis

Egg → Larva → Pupa → Adult

Larvae often look unlike adults. A butterfly caterpillar and a beetle grub are larvae. During the pupal stage, the body changes into its adult form.

Incomplete metamorphosis

Egg → Nymph → Adult

Nymphs grow through molts without a pupal stage. Dragonfly nymphs live in water. Cricket and grasshopper nymphs resemble smaller, wingless adults.

Pictures are enlarged illustrations, not exact size comparisons. Species, sex, season, and age affect appearance. Florida sightings vary by region and habitat.

MONARCH BUTTERFLY

Danaus plexippus

Orange wings, black veins, and white-spotted borders help identify this butterfly.



QUICK FACTS

Animal group: Insect
Adult wingspan: About 3–4 inches
Habitat: Gardens, fields, and open areas
Adult food: Flower nectar

FROM EGG TO BUTTERFLY

Egg: Laid on milkweed.
Caterpillar: Eats milkweed leaves.
Chrysalis: The body changes inside a green casing.
Adult: Flies and feeds on nectar.



HOW ITS BODY WORKS



Monarchs have a head, thorax, abdomen, and six legs. Their tiny front pair stays folded near the head. A coiled feeding tube called a proboscis unrolls to sip nectar.

WHY MILKWEED MATTERS

Milkweed is the host plant for monarch caterpillars. Adults visit many kinds of flowers, but their caterpillars need milkweed leaves.



MONARCH BUTTERFLY

Danaus plexippus

A closer look at its life cycle, feeding, and body features.

FOUR STAGES OF CHANGE



1. EGG
Laid on milkweed.

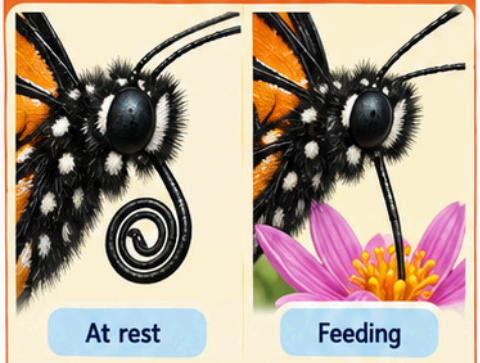
2. CATERPILLAR
Eats leaves and molts as it grows.

3. CHRYSALIS
Adult body develops inside the pupa.

4. ADULT
Flies, feeds, and reproduces.

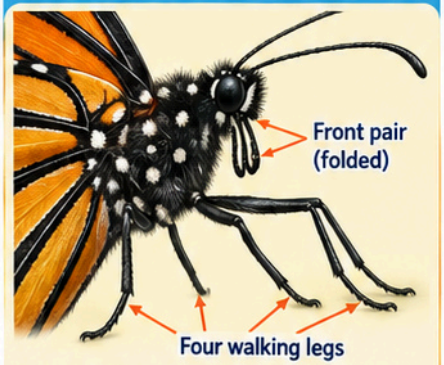
Complete metamorphosis: egg, larva, pupa, adult.

THE PROBOSCIS



The proboscis unrolls to drink nectar, then coils up again.

SIX LEGS, FOUR WALKERS



All six legs attach to the thorax. the tiny front pair stays folded near the head.

TWO STAGES, TWO FOODS



Caterpillars chew milkweed leaves.



Adults drink flower nectar.

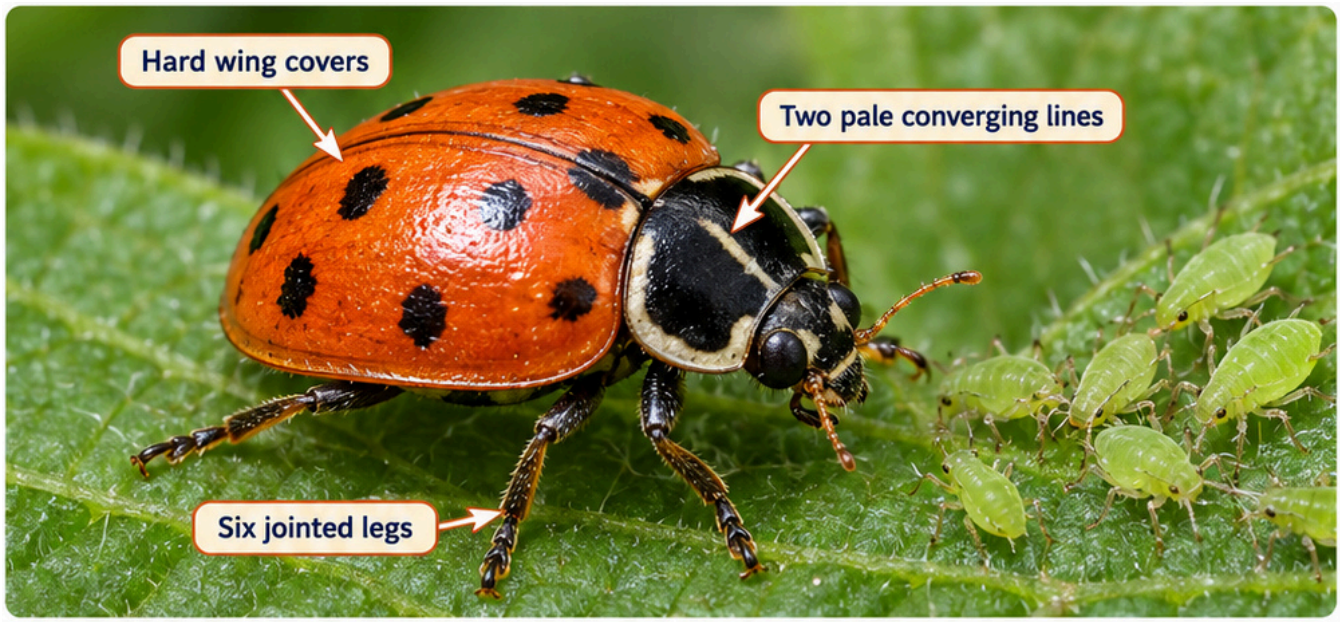
WHY THE CHANGES MATTER

The caterpillar feeds and grows. The pupa transforms. The adult moves and reproduces.

CONVERGENT LADY BEETLE

Hippodamia convergens

Look for orange-red wing covers and two pale lines behind the head.



QUICK FACTS

Animal group: Insect

Insect order: Beetles

Body length: About 1/4 inch

Habitat: Gardens, fields, and crop plants

A GARDEN PREDATOR

Adults and larvae eat aphids and other small, soft-bodied insects. Aphids feed on plant sap. Lady beetles help reduce their numbers.



Lady beetle larva

A VERY DIFFERENT YOUNG STAGE

A lady beetle passes through four stages: egg, larva, pupa, and adult. The active larva looks very different from the rounded adult.



WINGS UNDER A COVER

The hard forewings are called elytra. They protect thin hindwings. The beetle lifts its covers and unfolds its hindwings to fly.



Spot patterns vary. Spots do not reveal a lady beetle's age.

CONVERGENT LADY BEETLE

Hippodamia convergens

A closer look at growth, feeding, and flight.

FROM EGG TO FLYING BEETLE

EGGS



Laid in clusters near prey.

LARVA



Hunts aphids and molts as it grows.

PUPA



Changes into an adult while attached to a plant.

ADULT



Feeds, mates, and lays eggs.

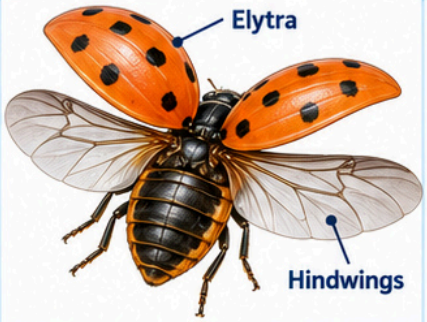
Complete metamorphosis: egg, larva, pupa, adult.

TWO HUNGRY STAGES



Both larvae and adults eat soft-bodied insects. Their chewing mouthparts break up prey. Eggs and pupae do not huntt.

PACKED FOR FLIGHT



Covers protect folded hindwings at rest. Hindwings unfold for flight.

READ THE MARKS



These pale lines help identify the species. Spot number varies and does not show age.

FOOD WEB



Food energy passes from plants to herbivores and then to predators.

GULF FRITILLARY

Agraulis vanillae

Orange wings above. Shining silver patches below.



Wingspan: about 2.5–3.5 inches

IDENTIFICATION

1. Orange upper wings with black marks
2. Elongated forewings
3. Large silver patches under the hindwings

HABITAT

Sunny gardens, open areas, and woodland edges.

FOOD

Caterpillars eat passionflower leaves. Adults drink flower nectar.

TWO SIDES OF A WING

The bright upper surface and silver-spotted underside look very different. A resting butterfly often holds its wings upright, revealing the underside.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

GULF FRITILLARY

Agraulis vanillae

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

A small egg rests on the host plant.



CATERPILLAR

An orange, black-spined larva eats passionflower.



CHRYSALIS

A brown pupa hangs by its tail attachment.



ADULT

A winged butterfly feeds and reproduces.

COMPLETE METAMORPHOSIS: four distinct stages

A COILED DRINKING TUBE

The adult unrolls a proboscis to reach nectar. The caterpillar uses chewing jaws instead. Different mouthparts match the different foods of these life stages.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Adults visit flowers, and caterpillars turn plant growth into food for other animals. Passionflower vines support the growing stage.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

ZEBRA LONGWING

Heliconius charithonia

Florida's state butterfly has long, striped wings.



Wingspan: about 3–4 inches

IDENTIFICATION

1. Long, narrow black wings
2. Pale yellow stripes across the wings
3. Small red spots near the underside wing bases

HABITAT

Shady garden edges, hammocks, and shrubby areas.

FOOD

Caterpillars eat passionflower leaves. Adults take nectar and pollen.

POLLEN IS FOOD, TOO

Unlike many butterflies, zebra longwings collect pollen as well as nectar. Pollen supplies nutrients beyond the sugary energy in nectar.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

ZEBRA LONGWING

Heliconius charithonia

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Yellow eggs sit on tender passionflower growth.



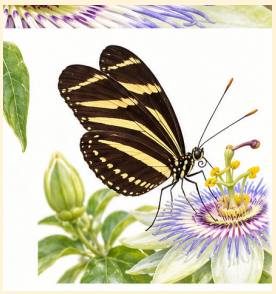
CATERPILLAR

A white caterpillar has black spots and spines.



CHRYSALIS

A brown, angular chrysalis protects the changing insect.



ADULT

The striped adult visits flowers.

COMPLETE METAMORPHOSIS: four distinct stages

A NIGHTTIME GATHERING

Adults often gather at shared roosts for the night. During the day, their slow flight carries them between flowers and host plants.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Adults move pollen between flowers. Passionflowers feed the larvae. This butterfly connects garden flowers, vines, and the animals sharing their habitat.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

GIANT SWALLOWTAIL

Papilio cresphontes

A large butterfly with a surprising citrus-eating caterpillar.



Wingspan: about 3.5–5.5 inches

IDENTIFICATION

1. Black upper wings crossed by yellow bands
2. Pale yellow underside
3. Tail-like extensions on the hindwings

HABITAT

Gardens, woodland edges, and citrus-growing areas.

FOOD

Larvae eat citrus-family leaves. Adults take nectar.

THE ORANGEDOG

The caterpillar is called an orangedog. Its brown-and-cream pattern resembles bird droppings, helping it blend into its surroundings.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

GIANT SWALLOWTAIL

Papilio cresphontes

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

An egg is placed on a citrus-family host.



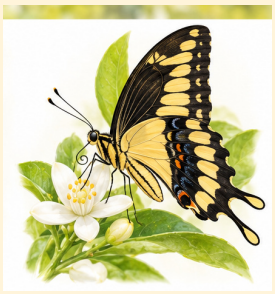
CATERPILLAR

A mottled brown-and-cream caterpillar eats leaves.



CHRYSALIS

A twiglike pupa is held by a silk girdle.



ADULT

The large yellow-and-black butterfly emerges.

COMPLETE METAMORPHOSIS: four distinct stages

A HIDDEN DEFENSE

A disturbed caterpillar pushes out a forked organ called an osmeterium behind its head. Its odor helps discourage some attackers. It is not a stinger.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

The adult visits flowers. Larvae are leaf eaters and part of the garden food web. A small citrus tree loses a greater share of its leaves to one larva than a large tree.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

CLOUDLESS SULPHUR

Phoebis sennae

A bright yellow visitor with a long nectar-reaching tongue.



Wingspan: about 1.9–2.6 inches

IDENTIFICATION

1. Mostly yellow wings
2. Small spots visible beneath the wings
3. Females often have more dark markings

HABITAT

Open gardens, roadsides, parks, and sunny fields.

FOOD

Larvae feed on senna and partridge pea. Adults drink nectar.

YELLOW OR GREEN

Caterpillars vary in color. Green forms often blend with leaves, while yellow forms blend with yellow flowers. Food and background help explain the colors people notice.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

CLOUDLESS SULPHUR

Phoebis sennae

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

A pale egg is laid on the host plant.



CATERPILLAR

A green or yellow larva eats senna-family growth.



CHRYSALIS

An angled chrysalis is fastened with silk.



ADULT

A yellow adult flies between flowers.

COMPLETE METAMORPHOSIS: four distinct stages

REACHING INTO FLOWERS

The adult's long proboscis reaches nectar inside tubular flowers. Fall movements often carry these butterflies south through Florida.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Flower visits help transfer pollen. Host plants provide the leaves and flowers larvae need before they become flying adults.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

EASTERN BLACK SWALLOWTAIL

Papilio polyxenes asterius

Parsley and dill feed the caterpillar of this dark butterfly.



Wingspan: about 2.7–3.3 inches

IDENTIFICATION

1. Black wings with rows of yellow spots
2. Blue scaling on the hindwings, often stronger in females
3. Orange-red spot with a dark center near each hindwing tail

HABITAT

Gardens, fields, and other open habitats.

FOOD

Larvae eat carrot-family plants, including parsley and dill. Adults drink nectar.

CHANGING DISGUISES

Young caterpillars look dark with a pale middle patch. Older larvae become green with black bands and yellow spots. One insect looks very different as it grows.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

EASTERN BLACK SWALLOWTAIL

Papilio polyxenes asterius

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

A pale egg is laid on a host leaf.



CATERPILLAR

A green, banded larva chews parsley or dill.



CHRYSALIS

A green or brown pupa rests against a stem.



ADULT

The tailed adult emerges and expands its wings.

COMPLETE METAMORPHOSIS: four distinct stages

A SILK SUPPORT

The chrysalis attaches at its rear and is supported by a silk band called a girdle. It is green or brown, rather than always matching the adult's colors.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Adults visit flowers, while larvae feed on host plants. The same garden supports two diets when it contains both nectar flowers and suitable larval plants.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

WESTERN HONEY BEE

Apis mellifera

A flower visitor living in a colony with many shared jobs.



Worker body length: about 0.5 inch

IDENTIFICATION

1. Hairy thorax
2. Banded abdomen with variable yellow-brown coloring
3. Worker hind legs sometimes carry packed pollen

HABITAT

Flowering gardens, orchards, and fields near colonies.

FOOD

Adults use nectar and pollen. Young are fed by workers in the nest.

POLLEN BASKETS

Workers pack pollen into smooth areas on their hind legs called pollen baskets. Pollen contains protein used to raise young bees.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

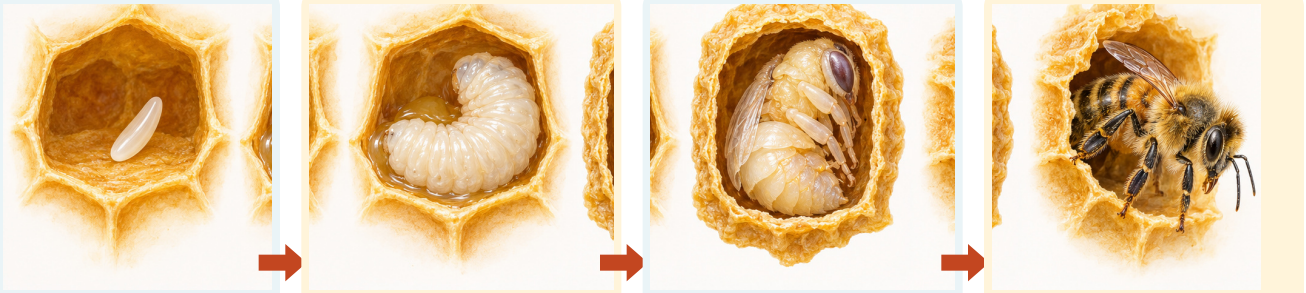
Identification clues describe typical adults. Similar species sometimes need expert comparison.

WESTERN HONEY BEE

Apis mellifera

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

The queen lays an egg in a wax cell.

LARVA

Workers feed the soft, legless larva.

PUPA

The insect changes inside a capped cell.

ADULT

A worker emerges and takes colony jobs.

COMPLETE METAMORPHOSIS: four distinct stages

THREE COLONY ROLES

The queen lays eggs. Female workers tend young, build wax comb, guard, and forage. Male drones mate with queens. The colony shares food and care.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Honey bees move pollen among flowers and pollinate many crops. This introduced species is one member of a much larger community of Florida pollinators.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

COMMON EASTERN BUMBLE BEE

Bombus impatiens

A fuzzy native bee uses vibrations to collect pollen.



Body length: roughly 0.3–0.8 inch, depending on caste

IDENTIFICATION

1. Hairy yellow thorax
2. First abdominal segment yellow, most of the rest black
3. Pollen-carrying workers have baskets on hind legs

HABITAT

Flower-rich gardens and fields. Nests usually occupy underground cavities.

FOOD

Nectar provides energy. Pollen feeds developing bees.

BUZZ POLLINATION

A bumble bee grips a flower and vibrates its flight muscles. These vibrations shake pollen from certain flowers, including tomatoes. Honey bees do not perform this behavior.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

COMMON EASTERN BUMBLE BEE

Bombus impatiens

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

A queen lays eggs in the nest.



LARVA

Larvae receive pollen and nectar.



PUPA

Pupae develop within cocoons.



ADULT

Adults become workers, males, or new queens.

COMPLETE METAMORPHOSIS: four distinct stages

A QUEEN STARTS A COLONY

A queen begins a nest and raises the first workers. Workers then help gather food and care for young. Colony timing varies with climate and season.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Bumble bees pollinate wildflowers and crops. A fuzzy body picks up loose pollen, which reaches other flowers as the bee moves.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

EASTERN CARPENTER BEE

Xylocopa virginica

A shiny abdomen helps distinguish this bee from a bumble bee.



Body length: about 0.75–1 inch

IDENTIFICATION

1. Large body with a hairy yellowish thorax
2. Mostly shiny, hairless-looking black abdomen
3. Males have a pale facial patch

HABITAT

Gardens and woodland edges, especially in northern Florida.

FOOD

Adults drink nectar. Females store pollen and nectar for larvae.

A WOODEN NURSERY

A female excavates a tunnel in wood and divides it into brood cells. Each cell receives a pollen-and-nectar food supply and an egg.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

EASTERN CARPENTER BEE

Xylocopa virginica

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

An egg rests beside a stored food ball.



LARVA

A pale larva eats the stored pollen mixture.



PUPA

A pupa changes inside its wooden cell.



ADULT

The adult leaves the tunnel to visit flowers.

COMPLETE METAMORPHOSIS: four distinct stages

NESTING IS NOT EATING

The bee removes wood to make a nest. It does not eat the wood as food. Its larvae grow on the food placed in their cells.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

These native bees pollinate flowers. Nest tunnels in structures sometimes bring them into conflict with people. Males lack a stinger, although they often hover near nests.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

BLUE DASHER

Pachydiplax longipennis

A small dragonfly hunts from a pondside perch.



Adult body length: about 1.1–1.7 inches

IDENTIFICATION

1. Mature males have powder-blue abdomens
2. Thorax marked with dark and pale stripes
3. Four clear wings held out at rest

HABITAT

Ponds, marshes, and other still-water habitats.

FOOD

Aquatic young and flying adults both eat small animals.

TWO HUNTING WORLDS

Young live underwater and catch aquatic prey. Adults hunt flying insects above land and water. The final molt connects these two habitats.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

BLUE DASHER

Pachydiplax longipennis

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Eggs enter water.



YOUNG NYMPH

A small aquatic nymph begins hunting.



OLDER NYMPH

The larger nymph develops wing pads.



ADULT

An adult emerges after the final molt.

INCOMPLETE METAMORPHOSIS: no pupal stage

PERCH, WATCH, DASH

An adult often waits on a twig or stem, then darts out after prey. Large compound eyes help detect movement. The six legs form a basket for catching food.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Dragonflies eat other insects and become prey for birds, fish, and other hunters. Their young depend on water even when adults appear far from a pond.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

COMMON GREEN DARNER

Anax junius

A powerful flying hunter begins life underwater.



Adult body length: about 3 inches

IDENTIFICATION

1. Bright green thorax
2. Long abdomen, often blue in mature males
3. Four long, transparent wings

HABITAT

Ponds, marshes, lakes, and nearby open areas.

FOOD

Nymphs catch aquatic prey. Adults catch insects in flight.

A WATER-TO-AIR CHANGE

A mature nymph climbs onto a support above water. The adult emerges from its old outer skin, expands its wings, and waits while its body hardens.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

COMMON GREEN DARNER

Anax junius

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Eggs are inserted into wet plant material.



YOUNG NYMPH

A young nymph hunts underwater.



OLDER NYMPH

A larger nymph grows through molts.



ADULT

The winged adult hunts in the air.

INCOMPLETE METAMORPHOSIS: no pupal stage

MIGRATING DRAGONFLIES

Some populations travel long distances. Other populations remain in warmer areas. Migration and local development both contribute to the species' wide range.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

These predators link aquatic and land food webs. Fish eat nymphs, birds eat adults, and both stages eat other small animals.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

CAROLINA MANTIS

Stagmomantis carolina

Folded, spiny front legs help this hunter seize prey.



Adult body length: about 2–3 inches

IDENTIFICATION

1. Triangular head with large eyes
2. Long thorax and grasping front legs
3. Green, brown, or mottled gray camouflage

HABITAT

Garden plants, shrubs, meadows, and woodland edges.

FOOD

Nymphs and adults capture insects and other small arthropods.

A GRASPING TRAP

Spines on the folded front legs help hold prey. The mantis strikes quickly, then uses chewing mouthparts to eat. Its other four legs mainly support walking.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

CAROLINA MANTIS

Stagmomantis carolina

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Eggs develop inside a hardened case.



YOUNG NYMPH

Tiny nymphs emerge without wings.



OLDER NYMPH

Larger nymphs molt and develop wing pads.



ADULT

The adult has mature reproductive organs.

INCOMPLETE METAMORPHOSIS: no pupal stage

A FOAMY EGG CASE

The female deposits eggs in a protective case called an ootheca. The material hardens around the eggs. Small, wingless nymphs later emerge.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Mantises are generalist predators. They eat many kinds of insects, including pollinators and other predators, rather than selecting only garden pests.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

GREEN LACEWING

Chrysoperla rufilabris

Delicate adults have very different-looking young.



Adult wing length: about 0.5–0.75 inch

IDENTIFICATION

1. Green body and long antennae
2. Golden-looking eyes
3. Clear wings crossed by a fine network of veins

HABITAT

Trees, shrubs, gardens, and crop edges.

FOOD

Larvae eat small soft-bodied prey. Adults use nectar, pollen, and honeydew.

EGGS ON STALKS

A female places eggs at the tips of thin stalks. Each tiny egg sits above the leaf surface. The stalk is part of the egg attachment, not a plant stem.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

GREEN LACEWING

Chrysoperla rufilabris

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

A pale egg sits on a hairlike stalk.



LARVA

A long, mottled larva hunts small prey.



PUPA

A pupa develops within a silk cocoon.



ADULT

The green adult has delicate veined wings.

COMPLETE METAMORPHOSIS: four distinct stages

AN APHID HUNTER

The long larva has curved, hollow jaws. It grips soft prey and draws out body fluids. This feeding method differs from an adult drinking nectar.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Predatory larvae help reduce aphids and other small plant-feeding insects. Adult food sources and places to lay eggs support the next generation of hunters.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

EASTERN LUBBER GRASSHOPPER

Romalea microptera

Bright colors advertise a large, flightless leaf eater.



Adult body length: about 2–3 inches

IDENTIFICATION

1. Large, heavy body
2. Short wings on adults
3. Yellow, orange, red, and black markings vary

HABITAT

Florida gardens, fields, roadsides, and damp edges.

FOOD

Nymphs and adults chew many kinds of plants.

WINGS WITHOUT FLIGHT

Adults have wings, but those wings are too small for powered flight. Lubbers mainly walk and make short jumps. Young nymphs are often black with bright stripes.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

EASTERN LUBBER GRASSHOPPER

Romalea microptera

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Eggs are placed in soil.



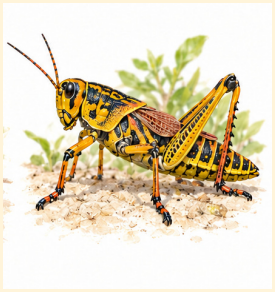
YOUNG NYMPH

Small, dark nymphs often gather in groups.



OLDER NYMPH

Larger nymphs molt as their bodies grow.



ADULT

The heavy adult develops short wings.

INCOMPLETE METAMORPHOSIS: no pupal stage

WARNING COLORS

Bold colors signal chemical defenses. A disturbed lubber sometimes releases a foamy secretion or makes a hissing sound. Many predators avoid it.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Lubbers consume leaves and sometimes damage landscape plants. Their defenses shape which predators eat them. A garden contains plant eaters as well as pollinators and hunters.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

SOUTHEASTERN FIELD CRICKET

Gryllus rubens

A familiar Florida lawn insect makes a continuous trill.



Adult body length: roughly 0.6–1 inch

IDENTIFICATION

1. Dark brown to black body
2. Long antennae and enlarged hind legs
3. Adults have forewings, with wing length varying

HABITAT

Lawns, pastures, roadsides, and sheltered ground.

FOOD

Plant material, seeds, and some small animal material.

A SONG MADE BY WINGS

Males rub specialized areas of their forewings together. A file-and-scraper system produces the calling trill. The hind legs provide jumping power, not the song.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

SOUTHEASTERN FIELD CRICKET

Gryllus rubens

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Eggs develop in soil.



YOUNG NYMPH

Small wingless nymphs emerge.



OLDER NYMPH

Older nymphs grow and develop wing pads.



ADULT

Adult males call to attract mates.

INCOMPLETE METAMORPHOSIS: no pupal stage

SOUND HELPS IDENTIFICATION

Similar field crickets are difficult to separate by appearance alone. The southeastern field cricket's trill is a useful clue, while some relatives produce separate chirps.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Crickets feed on organic material and become food for birds, lizards, spiders, and other hunters. Their calls are an important part of nighttime insect communication.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

BROADWINGED KATYDID

Microcentrum rhombifolium

Leaflike wings help a nighttime insect blend into foliage.



Adult body length: about 2–2.5 inches

IDENTIFICATION

1. Broad green wings with leaflike veins
2. Very long, threadlike antennae
3. Long hind legs built for jumping

HABITAT

Shrubs and trees in gardens and woodland edges.

FOOD

Mostly leaves and other plant material.

A LEAF WITH LEGS

The color, outline, and veins of the forewings resemble a leaf. Camouflage works best while the insect remains still among real foliage.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

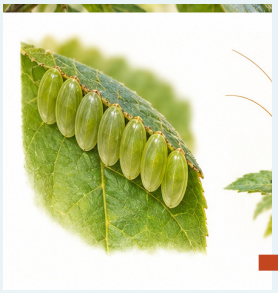
Identification clues describe typical adults. Similar species sometimes need expert comparison.

BROADWINGED KATYDID

Microcentrum rhombifolium

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



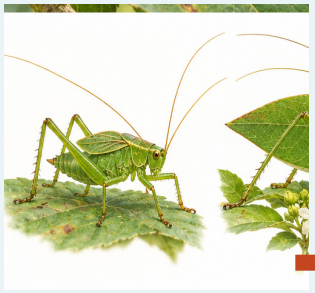
EGG

Flat eggs are attached to plant surfaces.



YOUNG NYMPH

A small green nymph lacks full wings.



OLDER NYMPH

The growing nymph develops wing pads.



ADULT

The leaf-winged adult feeds and calls.

INCOMPLETE METAMORPHOSIS: no pupal stage

HEARING WITH LEG ORGANS

Katydids have hearing organs on the front legs. Males produce sounds by rubbing their forewings. Sound helps individuals locate one another after dark.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

This leaf eater turns plant material into animal food. Birds, bats, and other hunters eat katydids. Concealment and sound both affect survival and reproduction.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

LARGE MILKWEED BUG

Oncopeltus fasciatus

Orange-and-black groups often gather on milkweed seed pods.



Adult body length: about 0.4–0.7 inch

IDENTIFICATION

1. Orange and black adult wings
2. Broad black band across the middle
3. Orange nymphs with black legs and developing wing pads

HABITAT

Milkweed patches in fields, roadsides, and gardens.

FOOD

Mainly milkweed seeds, using piercing-sucking mouthparts.

A BEAK FOR FEEDING

A narrow beak pierces a seed and draws in food. This is a different feeding tool from the chewing jaws of a grasshopper or butterfly caterpillar.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

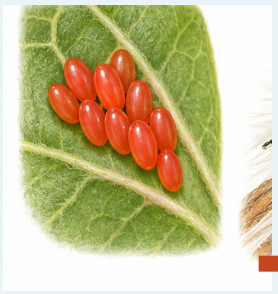
Identification clues describe typical adults. Similar species sometimes need expert comparison.

LARGE MILKWEED BUG

Oncopeltus fasciatus

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



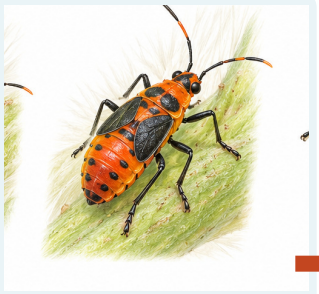
EGG

Eggs are laid near a food source.



YOUNG NYMPH

Small orange nymphs gather near seeds.



OLDER NYMPH

Older nymphs show dark wing pads.



ADULT

Adults have fully developed patterned wings.

INCOMPLETE METAMORPHOSIS: no pupal stage

SAME PLANT, DIFFERENT FOOD

Monarch caterpillars eat milkweed leaves. Large milkweed bugs mainly feed on the seeds. Sharing a plant does not mean sharing the same diet.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Milkweed bugs are seed feeders. Their bright colors advertise chemical defenses obtained from their host plants. Their feeding is one part of the milkweed community.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

RED PAPER WASP

Polistes carolina

A reddish wasp builds an open comb from plant fibers.



Adult body length: about 0.8–1 inch

IDENTIFICATION

1. Rust-colored body; similar species require expert comparison
2. Dark wings folded lengthwise at rest
3. Narrow waist and long dangling legs in flight

HABITAT

Gardens and sheltered sites near trees or buildings.

FOOD

Adults use sugary foods. Larvae receive chewed insect prey.

PAPER MADE FROM FIBERS

The wasp scrapes plant fibers and mixes them with saliva. The dried material forms a paperlike nest with open cells, rather than a honey bee's wax comb.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

RED PAPER WASP

Polistes carolina

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

An egg is attached inside a nest cell.



LARVA

A white larva is fed by adults.



PUPA

A pupa develops behind a silk cell cap.



ADULT

An adult emerges and joins colony activity.

COMPLETE METAMORPHOSIS: four distinct stages

PROTEIN FOR GROWING YOUNG

Adults capture caterpillars and other prey, chew them, and feed the pieces to larvae. Nectar and other sugars fuel the adults' movement.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

These wasps hunt plant-eating insects and visit flowers. Females defend their nest with a sting. The open comb contains eggs, larvae, and capped pupal cells.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

ASIAN TIGER MOSQUITO

Aedes albopictus

A tiny black-and-white fly develops in small water containers.



Adult body length: about 0.25 inch

IDENTIFICATION

1. One white stripe along the top of the thorax
2. Black legs with white bands
3. One pair of wings and a long proboscis

HABITAT

Shaded gardens near water-holding containers and tree holes.

FOOD

Adults take plant sugars. Females also take blood for egg production.

AN AQUATIC CHILDHOOD

Larvae wriggle in water and eat tiny particles and microorganisms. Pupae also live in water, but do not feed. Adults emerge at the water surface.

BODY BASICS

An adult has a head, thorax, and abdomen. All six legs attach to the thorax. The outer covering protects the body.

Identification clues describe typical adults. Similar species sometimes need expert comparison.

ASIAN TIGER MOSQUITO

Aedes albopictus

A closer look at growth, feeding, and life in the garden.

LIFE CYCLE



EGG

Eggs stick near the waterline.



LARVA

A wriggling larva feeds in water.



PUPA

A comma-shaped pupa changes without feeding.



ADULT

The adult emerges with one pair of wings.

COMPLETE METAMORPHOSIS: four distinct stages

SMALL CONTAINERS MATTER

Eggs are laid on container walls near the waterline. Rising water triggers hatching. A small amount of standing water supports development.

GROWTH FROM THE OUTSIDE

An insect grows by molting: it sheds its old outer covering. A new covering expands, then hardens. The adult no longer molts. Wings reach their usable adult form at the final change.

PART OF THE GARDEN FOOD WEB

Mosquitoes are food for other animals, but some spread pathogens. This introduced species bites during the day. Only females bite for blood, while both sexes use sugary food.

Life-cycle timing changes with temperature and food. Illustrations show representative stages.

WORDS TO KNOW

Useful language for understanding insects

Scientific words explain the patterns across these pages.

ABDOMEN

The rear body region. It contains many digestive and reproductive organs.

ANTENNAE

Paired sensory structures on an insect's head.

CAMOUFLAGE

Colors, shapes, or behavior which make an animal harder to notice.

CHRYSALIS

The pupal stage of a butterfly. A chrysalis is not a silk cocoon.

COCOON

A protective silk covering spun by some larvae around their pupal stage.

COLONY

A group of insects living together and sharing work or resources.

COMPOUND EYE

An eye made of many small visual units.

ELYTRA

The hardened forewings of beetles. They protect the hindwings.

HABITAT

The place and conditions in which an organism lives.

HOST PLANT

A plant used by a particular insect, often as food for its young.

LARVA

The growing stage between egg and pupa in complete metamorphosis.

METAMORPHOSIS

The changes in body form during an insect's development.

MOLT

To shed an outer covering so a growing body can expand.

NECTAR

A sugary liquid produced by many flowers.

NYMPH

An immature insect which grows without a pupal stage.

OOTHECA

A protective egg case, such as the one made by a mantis.

POLLINATION

Movement of pollen to the part of a flower where fertilization can begin.

PREDATOR

An animal which captures and eats other animals.

PROBOSCIS

An elongated feeding structure. Different insect groups use different kinds.

PUPA

The changing stage between larva and adult in complete metamorphosis.

THORAX

The middle body region, bearing the legs and any wings.

WING PAD

A developing external wing structure on a nymph.

SOURCES & FURTHER READING

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Species information checked for this edition in October 2026.

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CONVERGENT LADY BEETLE

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WESTERN HONEY BEE

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COMMON EASTERN BUMBLE BEE

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EASTERN CARPENTER BEE

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SOURCES & FURTHER READING

University, museum, and public-agency references

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INDEX

Alphabetical names and subjects

Numbers refer to the printed page numbers.

Antennae
1, 3, 9, 15, 25, 31, 33, 41

Aphids
3-4, 27-28

Asian Tiger Mosquito
39-40

Bees
15-20

Blue Dasher
21-22

Broadwinged Katydid
33-34

Butterflies
1-2, 5-14

Buzz pollination
18

Camouflage
9-10, 23-24, 33-34, 41

Carolina Mantis
25-26

Caterpillars
1-2, 5-14

Chrysalis
2, 6, 8, 10, 12, 14, 41

Cloudless Sulphur
11-12

Cocoons
18, 28, 41

Colonies
15-18, 37-38, 41

Common Eastern Bumble Bee
17-18

Common Green Darner
23-24

Complete metamorphosis
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 28, 38, 40

Convergent Lady Beetle
3-4

Dragonflies
21-24

Eastern Black Swallowtail
13-14

Eastern Carpenter Bee
19-20

Eastern Lubber Grasshopper
29-30

Egg cases, mantis
25-26, 41

Elytra
3-4, 41

Flight
4, 22, 24, 30

Food webs
4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40

Giant Swallowtail
9-10

Green Lacewing
27-28

Gulf Fritillary
5-6

Hearing
34

Honeydew
27

INDEX

Alphabetical names and subjects

Numbers refer to the printed page numbers.

Host plants
1-2, 5-14, 41

Incomplete metamorphosis
22, 24, 26, 28, 30, 32, 34, 36

Large Milkweed Bug
35-36

Larvae
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 28, 38, 40-41

Migration
12, 24

Milkweed
1-2, 35-36

Molting
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40-41

Monarch Butterfly
1-2

Nectar
1, 5, 7, 9, 11, 13, 15, 17, 19, 27, 37, 39, 41

Nymphs
22, 24, 26, 28, 30, 32, 34, 36, 41

Ootheca
25-26, 41

Osmeterium
10

Passionflower
5-8

Pollen
7-8, 15-20, 27

Pollen baskets
15-18

Pollination
8, 12, 14, 16, 18, 20, 38, 41

Predators
4, 22, 24, 26, 41

Proboscis
2, 6, 12, 39, 41

Pupae
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 28, 38, 40-41

Red Paper Wasp
37-38

Roosting
8

Seed feeding
35-36

Silk girdle
10, 12-14

Sound
30-34

Southeastern Field Cricket
31-32

Thorax
1, 3, 15, 17, 19, 21, 23, 25, 39, 41

Warning colors
29-30, 35-36

Water habitats
21-24, 39-40

Wax comb
16, 37-38

Western Honey Bee
15-16

Wood nests
19-20

Zebra Longwing
7-8