

Common Name And Order Of 50 Insects

1. Alfalfa weevil - Coleoptera
2. American cockroach - Dictyoptera
3. Antlion - Neuroptera
4. Aphid - Homoptera
5. Armyworm - Lepidoptera
6. Assassin bug - Hemiptera
7. Bagworm - Lepidoptera
8. Bed bug - Hemiptera
9. Black cutworm - Lepidoptera
10. Blow fly - Diptera
11. Cabbage butterfly - Lepidoptera
12. Carpenter ant - Hymenoptera
13. Carpenter bee - Hymenoptera
14. Cicada - Cicadidae
15. Codling moth - Lepidoptera
16. Colorado potato beetle - Coleoptera
17. Corn earworm - Lepidoptera
18. Dermestid beetle - Coleoptera
19. Dragonfly - Odonata
20. Emerald ash borer - Coleoptera
21. European corn borer - Lepidoptera
22. Flea - Siphonaptera
23. Ground beetle - Coleoptera
24. Gypsy moth - Lepidoptera
25. Honey bee - Hymenoptera
26. Hornworm - Lepidoptera
27. House fly - Diptera
28. Indian meal moth - Lepidoptera
29. Japanese beetle - Coleoptera
30. Lacewing - Neuroptera
31. Lady beetle - Coleoptera
32. Leafhopper - Homoptera
33. Mayfly - Ephemeroptera
34. Mexican bean beetle - Coleoptera
35. Mosquito - Diptera
36. Parasitic wasps - Ichneumonidae
37. Praying mantid - Dictyoptera
38. Rice weevil - Coleoptera
39. Sod webworm - Lepidoptera
40. Spittlebug - Homoptera
41. Squash bug - Hemiptera
42. Stink bug - Pentatomidae
43. Syrphid fly - Diptera
44. Termite - Isoptera
45. Thrips - Thysanoptera
46. Tiger beetle - Coleoptera
47. Tussock moth - Lepidoptera
48. Vinegar fly - Diptera
49. Western corn rootworm - Coleoptera
50. Yellowjacket - Hymenoptera



Common Name: alfalfa weevil - adult

Scientific Name: Curculionidae: *Hypera postica*

Status: key insect pest of alfalfa

Damaging Stage: mostly larval; occasionally adult

Description: The alfalfa weevil is a major pest of alfalfa and often requires chemical treatments to manage. The adult beetle is a small, dark grey or brown beetle approximately 1/4 inch long with a prominent brown snout and a distinct dark band that extends down the back.

Common Name: alfalfa weevil - larva

Scientific Name: Curculionidae: *Hypera postica*

Status: key insect pest of alfalfa

Damaging Stage: mostly larval; occasionally adult

Description: Immature alfalfa weevils are always legless and have black head capsules. In late spring, the eggs hatch and the larvae begin to feed. For the first few days, the larvae feed within the stem but then move to the leaf buds at the tips of the stems. The first two instars are generally brown in color, but the third and fourth are always green and have a characteristic white line down the middle of the back. Immature alfalfa weevils grow to approximately 3/8 inch in length.

Alfalfa Weevil Damage: defoliation, stunting, skeletonizing

Scientific Name: Curculionidae: *Hypera postica*

Status: key insect pest of alfalfa

Damaging Stage: mostly larval; occasionally adult

Injury: Alfalfa weevil larvae are important pests of alfalfa because they stunt the growth of alfalfa plants and significantly reduce harvest potential. Their feeding causes significant defoliation and stunting of the plant growth. As time progresses, their feeding gives the leaves a skeletonized appearance.

Management: Alfalfa weevil populations must be monitored in relation to the development of the plant. When economically significant numbers of weevils occur, pesticide use is justified.



Common Name: American cockroach - adult

Scientific Name: Dictyoptera: *Periplaneta americana*

Status: common pest in homes and buildings

Damaging Stage: nymph and adult

Description: The American cockroach is a distinctive insect with an elliptical-shaped body and thick spines on the tibia. Adults are usually between 1 and 1 1/2 inches long and have long, thread-like antennae. They have a characteristic red-brown coloration and have a lighter yellowish border around the thorax.

Common Name: American cockroach - nymphs - sometimes water bug

Scientific Name: Dictyoptera: *Periplaneta americana*

Status: common pest in homes and buildings

Damaging Stage: nymph and adult

Description: Female cockroaches carry their eggs in cases (oothecae). White-brown nymphs hatch from the cases but develop a red-brown color, similar to the adults, over time. An immature cockroach can molt as many as thirteen times in one year. Wing pads start to develop in the third or fourth instar. They usually hide during the day and feed on decaying organic matter at night.

American Cockroach Damage: disease transmission, contamination

Scientific Name: Dictyoptera: *Periplaneta americana*

Status: common pest in homes and buildings

Damaging Stage: nymph and adult

Injury: American cockroaches contaminate foods and food storage areas. They often leave behind fecal pellets that resemble mouse droppings. Because they tend to favor areas with damp conditions, they are the most common roach found in sewers which allows them to transmit a number of disease-producing organisms, including food poisoning, dysentery, and diarrhea.

Management: American roaches must be controlled in structures where they cause health hazards. Exclusion, baits and residual pesticides are used in their control.



Common Name: antlion - adult

Scientific Name: Myrmeleontidae: sp.

Status: beneficial predator

Beneficial Stage: immature

Description: Antlions are beneficial predators of small insects. Adult antlions resemble a damselfly in body shape but are poor fliers that usually only fly at night. They have long clubbed antennae that measure 1 1/2 the length of the head. They have a long, slender abdomen with two pairs of narrow, multi-veined wings.

Common Name: doodlebug - nymph

Scientific Name: Myrmeleontidae: sp.

Status: beneficial predator

Beneficial Stage: immature

Description: The immature antlion is sometimes called a doodlebug, due to the winding trails it leaves in the sand as it crawls about. It bears a relatively enormous pair of hollow mandibles, each with several sharp, teeth-like projections. These sharp hypodermic needle-like jaws are designed to pierce its victim and suck out fluids.

Antlion Benefit: predation

Scientific Name: Myrmeleontidae: sp.

Status: beneficial predator

Beneficial Stage: immature

Biology: Some antlion larvae excavate a characteristic conical pit in the sand that appears as a mini-volcano. The larva then hides at the bottom of the pit, only its open jaws protrude from the sand. When small crawling insects, such as ants, fall into the pit they slide to the bottom where they are instantly seized by the powerful jaws of the antlion.

Value: Antlions are generalist predators. They feed on ants and other small crawling insects and spiders that can be a pest and nuisance to humans.



Common Name: aphid, plant louse - adult

Scientific Name: Aphididae: several species

Status: can be very serious pests of many plants

Damaging Stage: nymph and adult

Description: Aphids are small, soft-bodied insects that can be green, yellow, brown, red, or black, depending upon the species. The body is usually pear-shaped with long legs and antennae and may or may not have wings. Most species have a characteristic pair of points called cornicles protruding from the posterior ends of the abdomen in an exhaust pipe-like fashion.

Common Name: aphid - nymphs

Scientific Name: Aphididae: several species

Status: can be very serious pests of many plants

Damaging Stage: nymph and adult

Description: Aphids have many generations per year, reproduce asexually and give birth to live young. Immatures appear very much like the adult except that they are smaller and have no wings. Adults and nymphs feed together in large colonies and so may become serious plant pests very quickly.

Aphid Damage: wilting, chlorosis, plant disease transmission, sooty mold

Scientific Name: Aphididae: several species

Status: can be very serious pests of many plants

Damaging Stage: nymph and adult

Injury: Aphid nymphs, and adults may cause plant damage in three important ways: (1) sucking out plant juices causes leaf wilting, curling, and chlorosis (yellowing). (2) transmission of important plant diseases. (3) partially digested liquid excrement called "honeydew" serves as a base upon which sooty mold can grow. This interferes with photosynthesis.

Management: Conservation of natural enemies is one of the most effective methods of aphid management. Maintaining plant health and vigor is also important. Alternative and chemical controls are a last resort.



Common Name: armyworm moth - adult

Scientific Name: Noctuidae: *Pseudaletia unipuncta*

Status: pest of grasses, small grain crops, and corn

Damaging Stage: caterpillar

Description: Armyworm adults are light brown-gray moths with a conspicuous white spot about the size of a pinhead on each front wing. The wingspan is approximately 1 1/2 inches across.

Common Name: armyworm - caterpillar

Scientific Name: Noctuidae: *Pseudaletia unipuncta*

Status: pest of grasses, small grain crops, and corn

Damaging Stage: caterpillar

Description: Armyworm eggs are laid in masses and are greenish white. Often, many hatch at the same time, which produces "armies" of these caterpillars. When such populations exist, they appear to march in masses, devouring all of the plants in their path. Full-grown caterpillars are gray and are approximately 1 1/2 inches long. White, orange, and dark brown stripes run the length of the abdomen on each side. The head capsule is light orange and can sometimes be mottled.

Armyworm Damage: skeletonization, defoliation

Scientific Name: Noctuidae: *Pseudaletia unipuncta*

Status: pest of grasses, small grain crops, and corn

Damaging Stage: caterpillar

Injury: Armyworms can be serious pests on a number of grasses, small grain crops, and corn. However, they also feed on and sometimes damage alfalfa, beans, clover, flax, millet, and sugar beets. Young caterpillars skeletonize leaf blades, while older caterpillars can consume the entire leaf.

Management: Armyworm management depends upon the stage of the crop, number of armyworms, and their size. These factors determine potential to cause economic or aesthetic harm and should be the basis for management decisions.



Common Name: assassin bug - adult

Scientific: Reduviidae: several species

Status: beneficial predator

Damaging and Beneficial Stage: nymph and adult

Description: Assassin bug species vary greatly in both size and coloration. Many are small (1/2 inch) and are green or brown. Others, such as the large wheel bug, grow to 1 1/2 inches, are gray in color and have a distinctive, cog wheel-shaped thorax.

Assassin bugs have an elongated, narrow head, a long, three-segmented mouthpart that appears as a beak, and an abdomen that is often widened at the middle, exposing the margins of the segments beyond the wings.

Common Name: assassin bug - nymphs

Scientific: Reduviidae: several species

Status: beneficial predator

Damaging and Beneficial Stage: nymph and adult

Description: Immature assassin bugs resemble the adult, both in behavior and shape but lack fully developed wings. They are aggressive and are not afraid to attack creatures much larger than themselves. They will inflict a very painful bite to humans if handled carelessly, causing a severe reaction in some persons.

Assassin Bug Benefit: predation

Scientific: Reduviidae: several species

Status: beneficial predator

Damaging and Beneficial Stage: nymph and adult

Biology: Assassin bugs are effective predators and may feed on a wide range of insects.

Value: The assassin bug is considered a beneficial predator of pest insects. They prey upon ants, cockroaches, and bedbugs as well as pests that are harmful to crops and vegetation.

Injury: Sometimes assassin bugs are feared because they are capable of inflicting painful bites. A few live in homes and can transmit human diseases.



Common Name: bagworm - bag

Scientific Name: *Psychidae: Thyridopteryx ephemeraformis*

Status: common pest of evergreens and shrubs

Damaging Stage: caterpillar

Description: Adult bagworm moths are seldom encountered. The small football-shaped bags are the most noticeable form of the insect and are commonly found hanging from leaves and twigs. Bagworm eggs hatch in midsummer and the larvae crawl out of the bottom of the bag. There may be as many as 300 eggs per bag.

Common Name: bagworm - larva

Scientific Name: *Psychidae: Thyridopteryx ephemeraformis*

Status: common pest of evergreens and shrubs

Damaging Stage: caterpillar

Description: Larvae are light brown or tan, although some may have a mottled appearance. The small caterpillars spin silken strands that are either caught by the wind and dispersed or are wrapped around tree branches. From there they begin creating small silk shelters woven together with bits of foliage (bags) from their environment. Bagworms live within these bags for protection and enlarge them as they grow. They may grow to 2 inches or more in length.

Bagworm Damage: defoliation

Scientific Name: *Psychidae: Thyridopteryx ephemeraformis*

Status: common pest of evergreens and shrubs

Damaging Stage: caterpillar

Injury: Bagworms prefer juniper, arborvitae, spruce, pine, and cedar but also may attack deciduous trees. They can cause severe damage to trees and shrubs as they defoliate the branches and are particularly damaging on evergreen plants.

Management: Picking off and destroying the bags is often best if populations are light and plants are small. Timing is critical for bagworm chemical management. Using pesticides or alternative controls at egg hatch and while the larvae are exposed is the most effective strategy.



Common Name: bed bug - adult

Scientific Name: Cimicidae: *Cimex lectularius*

Status: blood-feeding pest of people

Damaging Stage: nymph and adult

Description: Bed bugs are red-brown insects that are only 1/5 inch long. A bed bug is flattened, oval, and wingless, and its abdomen has a banded appearance.

Bed bugs have a long history with humans and are well known people pests. In the recent past, they were largely eradicated from the United States. However, very recently they have made a dramatic comeback and are now considered serious urban pests in the United States and throughout the world.

Common Name: bed bug - nymph

Scientific Name: Cimicidae: *Cimex lectularius*

Status: blood-feeding pest of people

Damaging Stage: nymph and adult

Description: Females lay one to seven eggs each day and may potentially lay 100 eggs in their life time. Immature bed bugs are similar to adults but much smaller. They are usually flattened and colorless, except immediately after feeding, when they turn a purple-red color, and swell up in size. Bed bugs have 5 nymphal instars, each requiring a blood meal and approximately 1 week to complete.

Bed Bug Damage: physical and emotional irritation, significant expense to control

Scientific Name: Cimicidae: *Cimex lectularius*

Status: blood-feeding pest of people

Damaging Stage: nymph and adult

Injury: Although they do not transmit diseases, they are responsible for considerable physical and emotional irritation due to their blood-feeding activities. Bed bugs usually bite people at night while they are sleeping. Although symptoms after being bitten vary, most people develop an itchy red welt.

Management: Eradicating bed bugs is very difficult and often requires a combination of laundry, heat, enasements, monitoring, as well as pesticide tactics.



Common Name: black cutworm moth - adult

Scientific Name: Noctuidae: *Agrotis ipsilon*

Status: pest of field and garden crops, and turfgrass

Damaging Stage: caterpillar

Description: The drab-colored moths are similar in size and shape to other species of the cutworm family. The distinguishable marking is a small, black slash or dagger near the outer edge of the front wings. Females lay their eggs in cracks in the soil. The eggs hatch within a week, then the larvae feed on host plants for about a month.

Common Name: black cutworm - caterpillar

Scientific Name: Noctuidae: *Agrotis ipsilon*

Status: pest of field and garden crops, and turfgrass

Damaging Stage: caterpillar

Description: Black cutworms caterpillars are gray to nearly black with a distinct pale stripe extending down the center of the back. Newly hatched larvae are approximately 1/4 inch long and reach 2 inches when they are fully grown.

Pupae and adults overwinter in the soil but cannot survive the winter in northern United States. The moths return each year from the south via strong air currents and storms.

Black Cutworm Damage: defoliation

Scientific Name: Noctuidae: *Agrotis ipsilon*

Status: pest of field and garden crops, and turfgrass

Damaging Stage: caterpillar

Injury: Severe damage usually does not occur until black cutworms reach the fourth instar. Early instar cutworm feeding involves cutting small irregular holes in plant leaves. As the larvae mature, black cutworms sever the plants at the soil line. Grass plants, including corn and turfgrass, are most susceptible to cutworm damage. Multiple generations of cutworms may occur beginning very early in the spring.

Management: Cutworm management depends upon the stage of the crop, number of cutworms, and their size. These factors determine potential to cause economic or aesthetic harm and should be the basis for management decisions.



Common Name: blow fly - adult

Scientific Name: Calliphoridae: several species

Status: beneficial insect, except when an annoyance around homes

Damaging Stage: adult; **Beneficial Stage:** maggot

Description: Adult blow flies are metallic blue-, green-, copper-, or black-colored and resemble house flies in appearance. The hair on the last antennal segment is feathery.

Blow fly adults deposit eggs in and around dead animals and animal refuse. When the eggs hatch, the larvae feed on decaying flesh, rotting vegetation, or matted hair.

Common Name: blow fly - maggot

Scientific Name: Calliphoridae: several species

Status: beneficial insect, except when an annoyance around homes

Damaging Stage: adult; **Beneficial Stage:** maggot

Description: Female flies lay eggs on or near suitable habitats. Maggots hatch from the eggs within two days and develop through three instars before pupating in the soil. Blow fly maggots are cream-colored and have a pointed head end. They are approximately 1/2 inch long. Adult flies emerge ten to seventeen days after the formation of the pupal cell. They complete many generations per year.

Blow Fly Benefit: recycle organic wastes

Damage: food contamination, disease transmission

Scientific Name: Calliphoridae: several species

Status: beneficial insect, may cause health concerns

Damaging Stage: adult; **Beneficial Stage:** maggot

Value: Blow flies are valuable because they help break down and recycle animal tissue and manure. They are also valuable to forensic investigations in determining time of death.

Injury: Blow flies can be responsible for transmitting pathogens such as Salmonella, Shigella, Enterococcus, and Chlamydia.

Management: When required, blow fly populations may be controlled using sanitation and exclusion practices. Specific pesticides must be used very cautiously around humans or human foods.



Common Name: cabbage butterfly - adult

Scientific Name: Pieridae: *Pieris rapae*

Status: pest of vegetable crops

Damaging Stage: caterpillar

Description: The wings of cabbage butterflies are white-green with black tips. There are two submarginal black spots in females and one in males. The butterflies overwinter as pupae and emerge in early spring. There is one generation per year.

Common Name: cabbageworm - caterpillar

Scientific Name: Pieridae: *Pieris rapae*

Status: pest of vegetable crops

Damaging Stage: caterpillar

Description: Caterpillars are called cabbageworms. They are green with a yellow stripe down the middle of the back and grow to approximately 1 1/4 inches in length. They have four pairs of prolegs in addition to three pairs of true legs near the head.

Cabbageworm Damage: defoliation and skeletonization

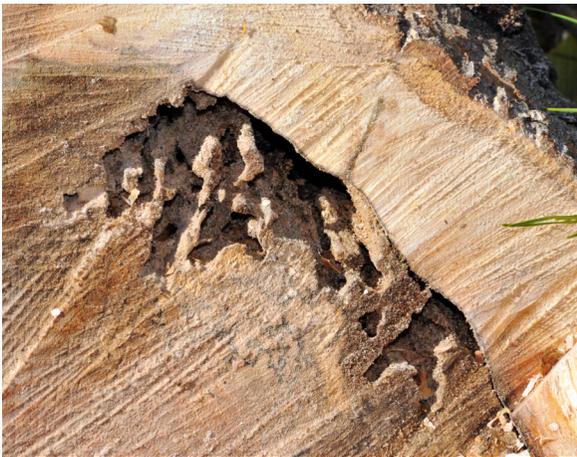
Scientific Name: Pieridae: *Pieris rapae*

Status: pest of vegetable crops

Damaging Stage: caterpillar

Injury: Adults lay eggs on the undersides of leaves. Caterpillars tend to feed on leaf tissue in between the veins. They often hide next to or underneath the leaf veins. Cabbageworms feed on plants of the mustard family (crucifers), particularly cabbage and broccoli. They also are attracted to dandelions and other flowers.

Management: Frequent sampling for cabbageworm when plants begin to head may allow for timely interventions with pesticides to protect yields.



Common Name: carpenter ant - adult

Scientific Name: Formicidae: several species

Status: usually beneficial, occasionally a pest of homes and buildings

Damaging Stage: adult

Description: Carpenter ants range in size from 1/4 to 3/4 inch, depending on whether the insect is a queen or a worker. Queens are large and black with some red, brown, or yellow spots occurring on parts of the body and legs. The smaller workers are brown and have a large head and a small thorax.

Common Name: carpenter ant - reproductives

Scientific Name: Formicidae: several species

Status: usually beneficial, occasionally a pest of homes and buildings

Damaging Stage: adult

Description: Carpenter ants live in social colonies with one queen and many workers. When colonies mature reproductives may be produced. These queens and reproductive males have wings. Fertilized queens form nests and lay eggs. Ant larvae are legless and grublike. They are approximately 1/4 inch long and cream-colored. Larvae remain in the nest and are cared for by the workers.

Carpenter Ant Benefit: predation;

Damage: wood damage

Scientific Name: Formicidae: several species

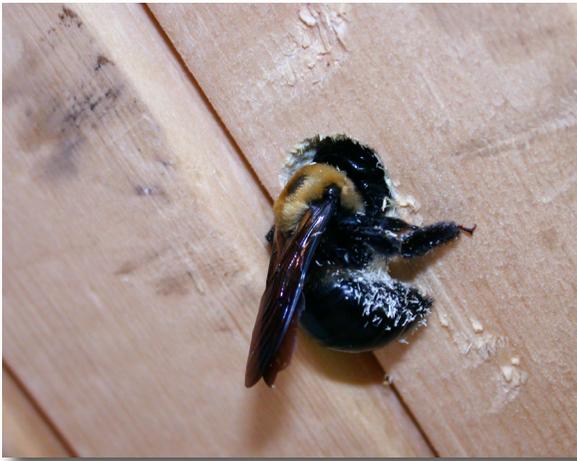
Status: usually beneficial, occasionally a pest of homes and buildings

Damaging Stage: adult

Biology: Most carpenter ants are beneficial insects. Outdoors they may offer plant protection by consuming potential pest insects, and they also facilitate the breakdown of dead trees on a forest floor.

Injury: Carpenter ants do not eat wood but they often nest in it. They may cause damage to structures when they nest in or hollow out wood boards for shelter.

Management: Chemical controls are usually the best option for a carpenter ant infestation inside a building when the nest can be located. Ant baits are effective when properly used to control foraging ants.



Common Name: carpenter bee - adult

Scientific Name: Apidae: *Xylocopa virginica*

Status: beneficial as pollinators but can be a pest of wooden structures

Damaging and Beneficial Stage: adult

Description: A carpenter bee closely resembles a bumble bee except that the upper surface of its abdomen is bare and shiny black, and lacks the hair that is so distinctive in bumble bees. They may cause aesthetic damage to exposed bare wood surfaces in buildings and decks.

Common Name: carpenter bee - wood bee

Scientific Name: Apidae: *Xylocopa virginica*

Status: beneficial as pollinators but can be a pest of wooden structures

Damaging and Beneficial Stage: adult

Description: Carpenter bees are solitary and do not form colonies of workers as do bumble and honey bees. They rear young by feeding them pollen from trees and flowers. Larvae remain in the tunnels until mature and thus are seldom encountered.

Carpenter Bee Benefit: pollination;

Damage: wood damage

Scientific Name: Apidae: *Xylocopa virginica*

Status: beneficial as pollinators but can be a pest of wooden structures

Damaging and Beneficial Stage: adult

Benefit: Carpenter bees are valuable pollinators of many plants.

Injury: Carpenter bees do not feed on wood. Damage to wooden structures occurs when the adults drill holes into and excavate tunnels for shelter and nesting. They nest in a wide range of woods used by people including wooden fences, utility poles, firewood, trees, and lawn furniture.

Management: Chemical controls are somewhat effective if applied repeatedly every few weeks to the entrance of holes.



Common Name: cicada, locust - adult

Scientific Name: Cicadidae: several species

Status: annoying; can damage tender tree limbs

Damaging Stage: adult and nymph

Description: Cicadas have prominent wide-set eyes, short antennae, and clear wings held rooflike over the abdomen.

Periodical cicadas are 1 to 2 inches long and have black bodies and orange wing veins. They spend the majority of their lives underground but emerge in great numbers after 13 or 17 years, depending on the brood.

Annual cicadas can be more than 2 inches long with very unique green or brown bodies and large eyes. Annual cicadas emerge each year during the summer months.

Common Name: cicada - nymph

Scientific Name: Cicadidae: several species

Status: can rarely damage young or stressed trees

Damaging Stage: adult and nymph

Description: After mating, female cicadas cut slits into the tender bark of young twigs in which to lay their eggs. When the eggs hatch, the nymphs drop to the ground and bury themselves down into the soil until they find a tree root where they can attach and begin to suck out juices. They reappear above ground to complete their last molt before emerging as winged adults.

Cicada Damage: annoyance due to noise, may injure small twigs and branches

Scientific Name: Cicadidae: several species

Status: annoying; can damage young trees

Damaging Stage: adult and nymph

Injury: When cicadas emerge in large numbers, they may leave significant numbers of unsightly cast skins on tree trunks, fence posts or the sides of structures. When there is a large emergence, the loud calls of the cicadas can be annoying and deafening. Mostly, however, real cicada damage occurs as a result of these insects killing small tree branches and twigs when they lay their eggs.

Management: Wrapping or caging susceptible trees (young or recently transplanted) is the only effective exclusion strategy.



Common Name: codling moth - adult

Scientific Name: Tortricidae: *Cydia pomonella*

Status: pest of fruits and nuts

Damaging Stage: caterpillar

Description: Codling moth adults are approximately 1/2 inch long with mottled gray wings that are held tentlike over their bodies. They can be distinguished from other moths by a dark, copper-brown band at the tips of their wings.

Common Name: apple worm - caterpillar

Scientific Name: Tortricidae: *Cydia pomonella*

Status: pest of fruits and nuts

Damaging Stage: caterpillar

Description: Codling moth larvae are pink or white with a brown head capsule and are approximately 3/4 inch long.

Adults emerge in late spring and lay eggs on fruit, nuts, leaves, and spurs. The eggs hatch within two weeks, and the larvae bore into and feed inside the fruit of their host tree. After they complete development, the larvae drop from the trees to find pupation sites in the soil. There are two to three generations per year.

Codling Moth Damage: burrow into and destroy fruit

Scientific Name: Tortricidae: *Cydia pomonella*

Status: pest of fruits and nuts

Damaging Stage: caterpillar

Injury: Larvae typically tunnel to the core of the fruit. The tunnel entrances are surrounded with red-brown, crumbly, frass deposits. Infested fruit is considered “wormy” and unfit for human consumption.

Management: Insecticides, mating disruption, and cultural controls are used to keep codling moth populations in check.



Common Name: Colorado potato beetle - adult

Scientific Name: Chrysomelidae: *Leptinotarsa decemlineata*

Status: pest of some vegetable crops, particularly potato

Damaging Stage: larval

Description: Colorado potato beetles are major pest of potatoes throughout the U.S. They became a pest in Colorado in 1859 when they switched host plants from its native host to potato and then spread eastward. Adults are approximately 1/2 inch long with rounded outer wings marked with black and yellow-white stripes. The head is tan-orange with black markings.

Common Name: potato bug - larva

Scientific Name: Chrysomelidae: *Leptinotarsa decemlineata*

Status: pest of some vegetable crops, particularly potato

Damaging Stage: larval

Description: Colorado potato beetle larvae are red with two rows of black spots on each side. As they mature, they turn a salmon-pink color. They are soft-bodied, slug-like, and appear hump-backed.

Female beetles lay eggs in clusters of ten to thirty on the undersides of leaves. After the eggs hatch, the larvae stay in these groups while young, but start to move through the plant leaves as they age. There are one or two generations per year.

Colorado Potato Beetle Damage: defoliation

Scientific Name: Chrysomelidae: *Leptinotarsa decemlineata*

Status: pest of some vegetable crops, particularly potato

Damaging Stage: larval

Injury: The larvae feed on potato foliage until it is completely devoured. In addition to potato, they also feed on eggplant, tomato, pepper and others.

Management: Crop rotation, residue sanitation, and mulching, as well as pesticides and alternative controls are required for Colorado potato beetle management.



Common Name: corn earworm, cotton bollworm, tomato fruitworm - adult

Scientific Name: Noctuidae: *Heliothis zea*

Status: a major agricultural pest, particularly of sweet corn

Damaging Stage: caterpillar

Description: Adult moths are light yellow/brown in color and with a wing span of 1-5 inches. They have hind wings that are creamy white with dark edges. They live for 2-4 weeks and may lay as many as 3000 eggs during that time. Usually only 2 generations occur in the northern united states.

Common Name: corn earworm, cotton bollworm, tomato fruitworm - caterpillar

Scientific Name: Noctuidae: *Heliothis zea*

Status: a major agricultural pest, particularly of sweet corn

Damaging Stage: caterpillar

Description: Larvae can be light green, pink, dark brown, or nearly black. They have alternating light and dark stripes that run longitudinally down the body. Usually, there are double dark stripes toward the center of the back. When mature, larvae reach a length of approximately 1 1/2 inches.

Corn Earworm Damage: leaf and fruit feeding

Scientific Name: Noctuidae: *Heliothis zea*

Status: a major agricultural pest, particularly of sweet corn

Damaging Stage: caterpillar

Injury: After eggs hatch, the larvae feed on leaves, tassels, and whorls, and within fruits. Extensive damage is characterized by large amounts of frass around the feeding sites. In corn, young larvae may feed on the corn silks, but the greatest damage is inflicted on the ears when kernels are filling.

Management: Corn earworm management practices should be timed to coincide with egg hatch and silk development.



Common Name: dermestid beetle - adult

Scientific Name: Dermestidae: several species

Status: pest of stored products/beneficial

Damaging Stage: larval and adult

Description: Adult beetles are approximately 1/16 - 1/3 inch long and can vary in shape from elongated to oval. They are usually dark brown but may be patterned with lighter scales. There are many species of dermestid beetles, several of which may become pests.

Common Name: dermestid, carpet beetle, skin beetle, hide beetle - larva

Scientific Name: Dermestidae: several species

Status: pest of stored products/beneficial

Damaging Stage: larval and adult

Description: Dermestid larvae are brown in color and covered in red-brown setae. They have two distinctive spines on the end of the abdomen that curve backward.

Eggs usually hatch within two weeks; larvae develop through five or six instars before pupating. The pupal stage usually lasts less than two weeks. There may be many generations per year.

Dermestid Beetle Benefit: decomposer

Damage: destruction of stored products

Scientific Name: Dermestidae: several species

Status: pest of stored products

Damaging Stage: larval and adult

Value: In outdoor environments, dermestid beetles fill a valuable role as decomposers of organic materials. They are commonly found in decaying animal carcasses.

Injury: Most damage is caused by the larval stage. Dermestid larvae feed on a number of stored foods as well as animal products (wool, silk, leather, etc.) that are of value to people.

Management: Dermestid beetles are best managed using preventative and sanitation techniques. When populations are out of control, fumigations and conventional pesticides may be used.



Common Name: dragonfly - adult

Scientific Name: Odonata: several families and species

Status: beneficial aquatic predator

Beneficial Stage: immature and adult

Description: Dragonfly adults are often brightly colored and have long, slender abdomens, large, multifaceted eyes, and two pairs of long, slender wings with net-like veins. Both pairs of wings usually have a stigma (colored patch) near the middle of the leading edge. The wings do not fold but are held outstretched when at rest.

Common Name: dragonfly - naiad

Scientific Name: Odonata: several families and species

Status: beneficial aquatic predator

Beneficial Stage: immature and adult

Description: The immature stages of dragonflies are aquatic. Eggs are laid in or near bodies of water. Within a week, the eggs hatch and naiads go through twelve to fifteen instars. Nymphs are very active predators. They have a unique, extendable jaw that they use to capture other aquatic insects. The majority of the dragonfly's life is spent in the immature stage.

Dragonfly Benefit: predation

Scientific Name: Odonata: several families and species

Status: beneficial aquatic predator

Beneficial Stage: immature and adult

Biology: While in its immature stages, the dragonfly is an important part of the food web and is eaten by many fish and other aquatic animals. Likewise, it preys on smaller insects itself.

Value: As adults, dragonflies actively feed on insects flying nearby. Because of their general predatory behavior, dragonflies and their naiads are considered to be very beneficial insects.



Common Name: emerald ash borer - adult

Scientific Name: Buprestidae: *Agrilus planipennis*

Status: devastating introduced pest of ash trees

Damaging Stage: larval

Description: Emerald ash borers are conspicuous because of their flat-heads, large black eyes and their bullet-shaped, dark metallic-green bodies. They measure 1/2 inch in length and are 1/8 inch wide. The adult beetles emerge in early to midsummer.

Common Name: emerald ash borer - larva

Scientific Name: Buprestidae: *Agrilus planipennis*

Status: devastating introduced pest of ash trees

Damaging Stage: larval

Description: Females begin laying eggs about two weeks after emergence. Larvae hatch in one to two weeks, are cream-colored and have flat, broad, segmented bodies. The larvae bore through the bark of ash trees and feed for several weeks, beneath the bark, leaving characteristic S-shaped tunnels. Pupation occurs in the springtime. Emerald ash borers leave a characteristic D-shaped exit hole in the bark when they emerge as adults.

Emerald Ash Borer Damage: death of tree, dieback

Scientific Name: Buprestidae: *Agrilus planipennis*

Status: devastating introduced pest of ash trees

Damaging Stage: larval

Injury: Tunneling by the larvae eventually kills the tree. Trees typically begin to die back from the top of the canopy and symptoms progress downward leading to the death of the tree (2-4 years).

Management: Preventing the spread of infested ash trees is the best control strategy. Once infested, ash borers are difficult to control. Systemic insecticides show some promise but are a last resort.



Common Name: European corn borer - adult

Scientific Name: Pyradilae: *Ostrinia nubilalis*

Status: pest of field corn

Damaging Stage: caterpillar

Description: Adults are approximately 1/2 inch in length. They hold their tan-colored wings in a triangular shape at rest. European corn borers overwinter as larvae in corn stalks left from the previous growing season. As springtime temperatures increase, the larvae enter the pupal stages for two weeks before developing into adults. The adults generally emerge in late summer. There are two generations per year.

Common Name: European corn borer - larva

Scientific Name: Pyradilae: *Ostrinia nubilalis*

Status: pest of field corn

Damaging Stage: caterpillar

Description: European corn borer larvae are either a light tan or pink color. They have distinctive small, round brown spots on each segment. Mature larvae can reach a length of 1 inch. European corn borers feed on all above-ground tissues of the corn plant. But are known for tunneling within the stalk and ear, thereby weakening the plant, and reducing potential yield.

European Corn Borer Damage: shot holes, tunneling, plant lodging, death

Scientific Name: Pyradilae: *Ostrinia nubilalis*

Status: pest of field corn

Damaging Stage: caterpillar

Injury: European corn borers attack the tassels, ears, and stalks of corn plants. Once they enter into the stalks, corn borers form characteristic cavities that interfere with water and nutrient movement in the plant and weaken it structurally.

Management: Chemical controls are effective if they are used preventively early in the growing season. Recently transgenic corn (Bt corn) has been developed that includes a protein from a biological control agent and offers significant improvements in corn borer control.



Common Name: flea, cat flea - adult

Scientific Name: Pulicidae: Ctenocephalides felis

Status: nuisance pest of humans and pets

Damaging Stage: adult

Description: Fleas are small (1/16 inch long), agile, dark-colored, wingless insects with tube-like mouthparts that are adapted to feed on the blood of mammals. Their bodies are laterally compressed, and they have long legs that are well adapted for jumping. After a blood meal, female fleas lay their eggs in the hair coat of a host. The eggs fall from the hair onto bedding, floor surfaces, rugs, and furniture wherever the animal spends a majority of its time. Eggs hatch in a few days.

Common Name: flea, cat flea - larva

Scientific Name: Pulicidae: Ctenocephalides felis

Status: nuisance pest of humans and pets

Damaging Stage: adult

Description: Flea larvae resemble tiny white worms having no legs and a distinct brown head with no eyes. Even at maximum length, flea larvae are very small, measuring approximately 3/16 inch.

Flea larvae, unlike adults, do not move around much and do not feed on blood. They tend to avoid light by hiding in cracks and crevices.

The larvae primarily feed on animal dander in or near their habitat and develop over the course of several weeks. The pupae mature to adulthood in a silken cocoon in about two weeks.

Flea Damage: irritation/health concerns due to bites

Scientific Name: Pulicidae: Ctenocephalides felis

Status: nuisance pest of humans and pets

Damaging Stage: adult

Injury: Adults are nuisance pests to both humans and their pets. Flea saliva is irritating to the skin and small, red welts can form where bites have occurred. Fleas can also transmit tapeworms, cause anemia and create other minor medical issues such as allergic reactions.

Management: Although fleas can bite humans, they prefer to live on domesticated animals. When adult fleas are found, both the pet and the premises must be treated simultaneously. Pets should be properly treated as soon as fleas are present. Infested areas (where the larvae reside) should be properly cleaned and chemically treated concurrently.



Common Name: ground beetle - adult

Scientific Name: Carabidae: several species

Status: beneficial predatory insects

Beneficial Stage: adult and larva

Description: Although there is considerable variation in body shape and coloring, most ground beetles are shiny, black, and have ridged wing covers. They range from very small to large and are somewhat flattened. Ground beetles are very common in nearly every soil habitat.

Common Name: ground beetle - larva

Scientific Name: Carabidae: several species

Status: beneficial predatory insects

Beneficial Stage: adult and larva

Description: Females lay their eggs in the soil. After hatching, the larvae feed and grow for one to two years and pupate in small chambers made of soil. Many species spend the winter in these chambers, and the adults emerge in the spring. Immature ground beetles are most often black or reddish-brown in color and bear prominent mandibles that protrude to the front.

Ground Beetle Benefit: predation

Scientific Name: Carabidae: several species

Status: beneficial predatory insects

Beneficial Stage: adult and larva

Biology: Ground beetles are very common and are often mistaken as pests. In truth, these are active predators on other potential pests that occur in or on the soil.

Value: Ground beetles are seldom used as biological control agents by themselves, primarily because they are generalist feeders. However, in combination with other biological and cultural controls, they are valuable, naturally occurring, beneficial insects.



Common Name: gypsy moth - adult

Scientific Name: *Erebidae: Lymantria dispar*

Status: introduced pest of hardwood trees

Damaging Stage: caterpillar

Description: Adult moths have wings with variable patterns of black spots and bands. Males (right) have brown wings and feathery antennae whereas females (left) are cream-colored, and have threadlike antennae. Gypsy moth adults do not feed but larvae may feed on several hundred different species of trees. Gypsy moth taxonomy has been very fluid but as of 2012, it has been classified in the family *Erebidae*.

Common Name: gypsy moth - caterpillar

Scientific Name: *Erebidae: Lymantria dispar*

Status: introduced pest of hardwood trees

Damaging Stage: caterpillar

Description: Gypsy moths survive the winter in the egg stage and hatch in the spring when temperatures are above 60°F. Eggs are laid in mid- to late summer. They complete one generation per year. Female moths lay egg masses indiscriminately on trees, houses, and other structures in late summer. Often campers unknowingly spread this pest when egg masses are attached to recreational vehicles. Caterpillars characteristically have five pairs of raised blue spots along the back followed by six pairs of red spots.

Gypsy Moth Damage: defoliation of trees

Scientific Name: *Erebidae: Lymantria dispar*

Status: introduced pest of hardwood trees

Damaging Stage: caterpillar

Injury: Heavy infestations can be responsible for the complete defoliation of host trees. This damage, however, does not directly cause death for these plants. Defoliation does leave trees susceptible to secondary organisms such as borers and root rots, that are attracted to and kill stressed trees. Caterpillars also may cause allergic reactions in humans. The hairs cause skin rashes, particularly during the month of May, when larvae are small.

Management: Biological and chemical controls can suppress populations if applied early. Homeowners can also plant gypsy-moth-resistant trees to replace damaged ones.



Common Name: honey bee - adult

Scientific Name: Apidae: *Apis* several species

Status: beneficial pollinators and honey producers

Beneficial Stage: adult

Description: Honey bees are truly social insects. A mature colony of honey bees generally contains one queen (a fertile female), some drones (fertile males), and many workers (sterile females). Most people recognize honey bees because of their unique shape, color and behavior. Honey bees are unique among bees because they make and store honey in perennial hives made from wax. Honey is made when the nectar and sweet deposits from plants are gathered, modified, and stored in the honeycomb cells as a food source for the colony.

Common Name: honey bee

Scientific Name: Apidae: *Apis* several species

Status: beneficial pollinators and honey producers

Beneficial Stage: adult

Description: Honey bees develop through a complete metamorphosis, including egg, larva, pupa and adult. This is all regulated by the queen bee, within the hive. Eggs are laid singly in a wax honeycomb, that is produced and shaped by the worker bees. To defend themselves and their colony, honey bees have the ability to sting and inject venom into intruders. While they do this only as a way to defend themselves, the sting can be quite painful.

Honey Bee Benefit: pollination, honey production

Scientific Name: Apidae: *Apis* several species

Status: beneficial pollinators and honey producers

Beneficial Stage: adult

Biology: Wild colonies of honey bees are declining at an alarming rate due to diseases and parasites. Even in domesticated bees a recent syndrome called colony collapse disorder (CCD) is causing a general decline in bee numbers. Because of the benefits that honeybees provide, all honey bees should be protected wherever possible.

Value: Honey bees are one of very few domesticated insects. They are extremely effective pollinators of many plants, flowers, and crops. The value of honey bees as pollinators is often measured in the billions of dollars. Honey bees also produce honey and beeswax, both valuable commodities for humans.



Common Name: hornworm, tomato hornworm; tobacco hornworm

Scientific Name: Sphingidae: *Manduca* sp.

Status: pest of certain vegetable plants

Damaging Stage: caterpillar

Description: Hornworms are large, robust moths that have long, narrow front wings. Their bodies are spindle-shaped, pointed at both ends. They have gray-and-white mottled wings and abdomens lined along each side with five (tomato hornworm) or six (tobacco hornworm) conspicuous, orange-yellow spots.

Females lay their eggs singly on leaves. Larvae feed for three or four weeks before burrowing into the soil to pupate. The pupae overwinter, and the adults emerge in the spring. There are two generations per year.

Common Name: hornworm, tomato hornworm; tobacco hornworm - caterpillars

Scientific Name: Sphingidae: *Manduca* sp.

Status: pest of certain vegetable plants

Damaging Stage: caterpillar

Description: The distinctive green caterpillars can grow to more than 3 inches in length. A large, thick, pointed structure, or “horn,” protrudes from the upper abdominal end and is responsible for the name “hornworm.” Tobacco hornworms have seven straight, oblique white lines edged with black on the upper borders that run laterally along their abdomen. Tomato hornworms have eight V-shaped marks.

Due to their size, tobacco hornworms can consume large quantities of plant material. However, hornworms are not considered to be serious pests of commercial crops, probably due to the activities of natural enemies.

Hornworm Damage: defoliation and fruit destruction

Scientific Name: Sphingidae: *Manduca* sp.

Status: pest of certain vegetable plants

Damaging Stage: caterpillar

Injury: Larvae feed on plant leaves and develop through five instars. They feed on foliage, blossoms, and green fruits of tomatoes, tobacco, potatoes, eggplants, and peppers. The fifth instar is responsible for the majority of the defoliation that occurs.

Management: Conserving naturally occurring parasitic wasps provides adequate biological control in most cases. This, together with picking off and destroying caterpillars in tomato and other garden crops, is usually sufficient. Rototilling to destroy the pupae is also helpful. Bt is effective against early instars. Chemical pesticides are also very effective when justified.



Common Name: house fly - adult

Scientific Name: Muscidae: *Musca domestica*

Status: nuisance pest of homes and farms, recycler

Damaging Stage: adult; **Beneficial Stage:** maggot

Description: Adults are 1/2 inch long and have a gray thorax with four, dark, longitudinal lines on the back. The undersides of their abdomens are yellow, and their bodies are covered with hair. They have red compound eyes. Females lay their eggs singly in moist environments.

Common Name: house fly - maggot - larva

Scientific Name: Muscidae: *Musca domestica*

Status: nuisance pest of homes and farms

Damaging Stage: adult; **Beneficial Stage:** maggot

Injury: Female house flies lay large numbers of eggs near suitable larval food sources (moist garbage, animal excrement, or decomposing plant material). House fly larvae (maggots) are cream- or white-colored and cone-shaped. The head contains one pair of dark hooklike mouthparts. Maggots develop during a two-week period, and the pupal stage lasts less than one week. Adults may live for two months. There can be as many as twelve generations per year.

House Fly Benefit: recycling wastes;

Damage: nuisance and potential disease vector

Scientific Name: Muscidae: *Musca domestica*

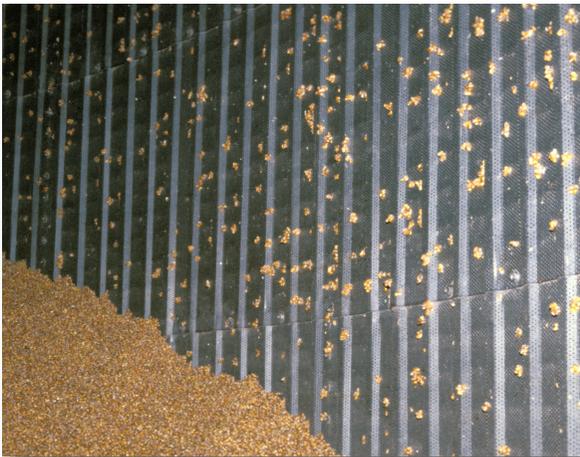
Status: nuisance pest of homes and farms

Damaging Stage: adult; **Beneficial Stage:** maggot

Value: In natural systems house flies are helpful in breaking down organic wastes.

Injury: Human health problems can occur with the movement of flies from animal or human feces to food made for human consumption. House flies can be responsible for transmitting pathogens such as Salmonella, Shigella, Enterococcus, and Chlamydia.

Management: The most effective way to control house fly populations is to implement sanitation and exclusion practices. Specific pesticides must be used very cautiously around humans or human foods.



Common Name: Indian meal moth - adult

Scientific Name: Pyralidae: *Plodia interpunctella*

Status: pest of stored food products, grains

Damaging Stage: caterpillar

Description: Indian meal moth adults are small (3/8 inch long). The overall body color is generally brown-gray, but the outer half the wing is abruptly bronze-colored. Female moths lay their eggs singly or in clusters on suitable larval food. There are four to six generations per year.

Common Name: Indian meal moth - larva

Scientific Name: Pyralidae: *Plodia interpunctella*

Status: pest of stored food products, grains

Damaging Stage: caterpillar

Description: Larvae have brown head capsules and are a dirty white or cream color. Sometimes, they may have a slight pink, green, or yellow tint and may reach approximately 2/3 inch long.

The larvae hatch from the eggs and produce silken tunnels for protection while feeding. Larval development time varies with temperature and type of food material. Before pupating, the larvae leave the food source.

Indian Meal Moth Damage: destruction of stored products

Scientific Name: Pyralidae: *Plodia interpunctella*

Status: pest of stored food products, grains

Damaging Stage: caterpillar

Injury: Indian meal moth larvae feed on many kinds of stored food products. As the larvae mature, they leave behind silken threads that bind to food particles. This webbing is often what attracts attention, either in stored grains or stored pantry foods.

Management: Good sanitation and prevention practices are the best way to control Indian meal moth populations. This involves removing old infested products and thoroughly cleaning all containers before new product is added. This is true for farm stored grains or for infestations in homes or pantries. Chemical controls including fumigation should only be used in cases of extreme infestations.



Common Name: Japanese beetle - adult

Scientific Name: Scarabaeidae: *Popillia japonica*

Status: pest of many plants, grasses, and ornamentals

Damaging Stage: grub and adult

Description: The Japanese beetle is about 1/2 inch long with shiny copper-colored wing covers and an iridescent green thorax and head. The abdomen has a row of white hair tufts on each side.

Adults emerge from the ground in midsummer, and may feed on more than 400 different trees, shrubs, flowers, vegetables, and crops. Females deposit their eggs in the soil. The eggs hatch about two weeks after deposition, normally between July and August.

Common Name: annual white grub - larva

Scientific Name: Scarabaeidae: *Popillia japonica*

Status: pest of many plants, grasses, and ornamentals

Damaging Stage: grub and adult

Description: Japanese beetle larvae are C-shaped white grubs that live in the soil. They have a brown head capsule and three pairs of legs. The larvae overwinter in cells beneath the soil surface. In the spring, the grubs resume feeding and prepare to pupate. There is one generation per year.

Japanese Beetle Damage: defoliation by adults, root feeding by grubs

Scientific Name: Scarabaeidae: *Popillia japonica*

Status: pest of many plants, grasses, and ornamentals

Damaging Stage: grub and adult

Injury: Adult beetles skeletonize the leaf and render it of little value to the plant. Japanese beetle grubs feed on the roots of grasses.

Management: If plant leaves are decimated by adult feeding, control options should be considered.

When sampling the soil, six to eight Japanese beetle larvae recovered per square foot is considered the average action threshold for turfgrass. Japanese beetle adults and larvae can be managed by a number of biological and chemical controls.



Common Name: lacewing, green lacewing, brown lacewing - adult

Scientific Name: Chrysopidae (green) and Hemerobiidae (brown): several species

Status: beneficial predators

Beneficial Stage: immature and some adult

Description: Lacewings belong to two separate families, but because their biology is very similar, they are often discussed together. Adult green lacewings measure approximately 3/4 inch in length, and have a delicate body with long antennae and bright, golden eyes. They have large, transparent, pale-green or brown wings with a characteristic network of heavy venation throughout.

Brown lacewings are less common, slightly smaller in size, and have hairy, darker-colored wings. Overall, they are coppery-brown in color.

Common Name: aphid lions

Scientific Name: Chrysopidae (green) and Hemerobiidae (brown): several species

Status: beneficial predators

Beneficial Stage: immature and some adult

Description: Lacewings lay their eggs on plants. Brown lacewings lay their eggs directly on the undersides of plant leaves, while green lacewing eggs are suspended at the tops of threadlike stalks for protection from predators.

Lacewing larvae are tiny upon emerging from the egg but can grow to 3/8 inch long. The larvae are slender and pointed at both ends. They have very characteristic, large, sucking jaws through which they draw out the body fluids of their prey.

Lacewing Benefit: predation

Scientific Name: Chrysopidae (green) and Hemerobiidae (brown): several species

Status: beneficial predators

Beneficial Stage: immature and some adult

Biology: Lacewings are predatory as larvae, and many are also predators as adults. They feed on aphids and small arthropods, such as mites, thrips, whiteflies, scales, and other soft-bodied prey and have been estimated to consume 600 to 1,000 aphids during their lifetimes.

Value: Lacewings are effective and beneficial predators in crops, gardens, and forests because they are relatively long-lived, produce several generations per year, and have a high reproductive capacity.



Common Name: lady beetle - adult

Scientific Name: Coccinellidae: several species

Status: very beneficial insect but an annoying household invader

Beneficial Stage: larval and adult

Description: Lady beetles are small, round, and dome-shaped. The most well-known lady beetles have black markings on red, orange, or yellow forewings, but some are black.

Lady beetles are extremely beneficial insects but can be an annoyance when they appear in large numbers in the home. One species of lady beetle (multicolored Asian lady beetle) has a peculiar behavior of congregating and passing the winter in man-made structures.

Common Name: lady beetle - larva

Scientific Name: Coccinellidae: several species

Status: very beneficial insect but an annoying household invader

Beneficial Stage: larval and adult

Description: Lady beetle larvae can grow to approximately 3/8 inch in length. They are usually black with orange spots and are covered with spines. To some they resemble tiny alligators with three pairs of legs.

In the spring, overwintering adults find food, and the females lay their eggs, often near aphid colonies. The eggs hatch in three to five days, and the larvae feed on aphids or other small insects. After two to three weeks, they pupate. Adults emerge within a week. There may be five to six generations per year.

Lady Beetle Benefit: effective predator;

Damage: home invader nuisance

Scientific Name: Coccinellidae: several species

Status: very beneficial insect but an annoying household invader

Beneficial Stage: larval and adult

Value: Larvae feed on aphids, soft-scale insects, mealybugs, spider mites, and other pests. One mature lady beetle larvae can eat its weight in aphids (approximately 400 aphids) in one day.

Injury: Asian lady beetles invade homes during the fall time. This causes significant annoyance to homeowners and may become a health (allergy) problem.

Management: Cultural controls such as sealing entry points in the fall and vacuuming emerging beetles are effective against low populations. Pesticides applied to the outside of a home may also be needed.



Common Name: leafhopper - adult

Scientific Name: Cicadellidae: several species

Status: pests of crops, flowers, grasses, vegetables, and trees

Damaging Stage: nymph and adult

Description: Potato leafhoppers are serious pests of agricultural crops. Adults are yellow or green and marked with various color patterns. They are very small and are wedge-shaped.

Many different species of leafhoppers may damage trees and crops such as potatoes, beans, apples, grapes, and clover.

Common Name: leafhopper - nymph

Scientific Name: Cicadellidae: several species

Status: pests of crops, flowers, grasses, vegetables, and trees

Damaging Stage: nymph and adult

Description: Leafhoppers overwinter as eggs or adults. Adults insert eggs into leaf veins or stems and eggs hatch after about 10 days. Nymphs feed in the same manner as the adults. Nymphs are similar to adults but do not have fully developed wings.

Generally, leafhoppers complete one generation per year but some species can complete up to six.

Leafhopper Damage: wilting, chlorosis, disease transmission

Scientific Name: Cicadellidae: several species

Status: pests of crops, flowers, grasses, vegetables, and trees

Damaging Stage: nymph and adult

Injury: There are many species of leafhoppers. All can be pests if populations build up to high levels. Leafhoppers feed by inserting their mouthparts into the plant and sucking the juices. This can cause injury in the form of wilting and yellowing often called hopperburn. Leafhoppers also can transmit deadly plant diseases.

Management: Outside of agriculture, control methods are rarely required for leafhoppers due to the large number of natural enemies that are usually present to suppress populations.



Common Name: mayfly - adult

Scientific Name: Ephemeroptera: Several families and species

Status: important component of aquatic food chain

Beneficial Stage: immature and adult

Description: Mayfly adults and immatures (nymphs or naiads) are one of the most common insects of freshwater ecosystems. Adults have two large, membranous wings with extensive wing venation throughout that are held upright, like a butterfly, when at rest. The second pair of wings is reduced or lacking. Legs are long, and the body is roughly cylindrical, bearing two very long, filamentous tails (cerci) at the end.

Adults are very short-lived and may only be present a couple of hours to a few days, but the immature stages may last a year or more.

Common Name: mayfly - nymph

Scientific Name: Ephemeroptera: Several families and species

Status: important component of aquatic food chain

Beneficial Stage: immature and adult

Description: The mayfly lays its eggs in lakes or streams. After hatching, the nymphs may molt twenty to thirty times during a period of a few months to a year, depending on the species. Mayfly nymphs are distinctive in that most have seven pairs of gills on the abdomen. In addition, most possess three long tails at the end of their bodies. Nymphs live primarily under rocks in streams or in decaying vegetation.

Mayflies are very common in the water, and when a hatch is on, the number of adults that congregate on the shorelines, near structures, and even in nearby towns can be staggering.

Mayfly Benefit: important part of aquatic food web

Scientific Name: Ephemeroptera: Several families and species

Status: important component of aquatic food chain

Beneficial Stage: immature and adult

Value: Mayfly nymphs feed on algae, which is beneficial to other inhabitants of lakes and streams, and also are a vital part of the aquatic food chain as food to many fish and other insects. Aquatic biologists use mayfly nymphs as a bio-indicator of water quality. Because they are very sensitive to changes in their aquatic environment, their presence or absence in a given body of water may be used to rate how polluted the water is. Fly fishermen know to look for mayfly emergences as times when fish will be attracted to specific ‘flies’ and will adjust their fishing techniques accordingly.



Common Name: Mexican bean beetle - adult

Scientific Name: Coccinellidae: *Epilachna varivestis*

Status: pest of beans and peas

Damaging Stage: larval and adult

Description: The copper-colored adults resemble large lady beetles. They are 1/4 inch long with eight black spots on each wing. Adults overwinter and emerge in midsummer. After feeding, the females lay their eggs on the underside of foliage. They hatch within a week during warm weather. There are two to three generations per year.

Common Name: Mexican bean beetle - larva

Scientific Name: Coccinellidae: *Epilachna varivestis*

Status: pest of beans and peas

Damaging Stage: larval and adult

Description: Mexican bean beetle larvae are quite unique in appearance. The entire body is covered with rows of stout-branched spines. When the larva is newly hatched, the entire body (including spines) is bright yellow, but as they mature, the spines become darker at the tips. Larvae also have a sucker-like apparatus at the hind end for attachment to feeding surfaces. The larvae feed for two to five weeks before pupating. When pupating, a larva fastens the tip of its abdomen to a part of the plant and sheds its larval skin. The pupal stage lasts for a week before the adult emerges.

Mexican Bean Beetle Damage: skeletonization of leaves

Scientific Name: Coccinellidae: *Epilachna varivestis*

Status: pest of beans and peas

Damaging Stage: larval and adult

Injury: The Mexican bean beetle is one of the only harmful members of the lady beetle family. Adults and larvae feed on the leaves of all kinds of beans (snap, lima, pole, kidney, pinto, navy, and bush). Mexican bean beetle leaf damage gives the leaves a skeletonized appearance. Pods and stems can be attacked also.

Management: Cultural, biological, and chemical control options are all successful in suppressing beetle populations.



Common Name: mosquito - adult

Scientific Name: Culicidae: several species

Status: serious blood-sucking pests, transmits diseases

Damaging Stage: adult (female)

Description: Mosquitoes are one of the most important pests that afflict mankind. They can transmit a number of deadly diseases, including malaria, dengue fever, yellow fever, west Nile virus, and encephalitis.

Several species of mosquitoes exist. Most are 1/4 to 1/2 inch long and have only two wings, both covered in scales. Females have an elongated proboscis.

Common Name: mosquito - larvae/wigglers

Scientific Name: Culicidae: several species

Status: serious blood-sucking pests, transmits diseases

Damaging Stage: adult (female)

Description: Most mosquitoes lay their eggs together in rafts on the surface of water. They hatch into larvae in about two days. Mosquito larvae are usually black or brown and are called “wigglers” because of their distinctive swimming style when disturbed. Larvae breathe through a long siphon at the surface of the water. They are slightly C-shaped with an enlarged front end.

The larvae live in the water until they pupate. Mosquito larvae primarily feed on organic material, bacteria, and microscopic plants in the water. Most mosquito species overwinter as eggs.

Mosquito Damage: disease transmission, irritation

Scientific Name: Culicidae: several species

Status: serious blood-sucking pests, transmits diseases

Damaging Stage: adult (female)

Injury: Disease transmission and irritation due to mosquito bites.

Management: Avoid mosquito-infested areas at times when they are most active. If contact is likely, wear long sleeved shirts and pants. The best way to reduce mosquito populations long-term is to eliminate their aquatic habitat. Non-chemical control methods, including mosquito-eating fish, Bt, and oil applications. Pesticides applied to the water are effective but must be used very carefully. Fogging for adult mosquitoes only provides short term control and should only be used as a last resort.



Common Name: parasitic wasps - adult**Scientific Name:** Braconidae and Ichneumonidae: several species**Status:** beneficial parasite**Beneficial Stage:** larval

Description: The term “parasitic wasps” refers to a large group of hymenopterans that are parasitic on other arthropods. They are very diverse in their sizes, biology, life cycles, and the hosts that they infest.

Two parasitic wasp families in particular, Braconidae and Ichneumonidae, are considered to be very beneficial to agriculture. Both are black or brown in color, and some have yellow, orange, or red accents. They have very long antennae, and the ovipositor is also long and readily apparent, protruding from the rear. Most are small wasps, ranging in size from 1/10 to 1/2 inch in length.

Common Name: parasitic wasps - larvae**Scientific Name:** Braconidae and Ichneumonidae: several species**Status:** beneficial parasite**Beneficial Stage:** larval

Description: Parasitic wasps lay their eggs on the bodies of pest insects (hosts), and when the eggs hatch, the larvae consume the hosts from the inside. By the time that these parasitoids complete development, the host insect is dead and the wasps emerge to seek another host. The generation time of most parasitic wasps is relatively short, often in the range of ten to thirty days. Many larvae form a silken cocoon on the outside of the insect carcass, in which they pupate.

Parasitic Wasps Benefit: parasitization**Scientific Name:** Braconidae and Ichneumonidae: several species**Status:** beneficial parasite**Beneficial Stage:** larval

Biology: Parasitic wasps are best known for their control of caterpillars. However, they also infest flies, sawflies, wood-boring beetles, weevils, leafmining insects, true bugs, and ants.

Value: Many species of parasitic wasps have been used successfully as biological control agents for pests. Unlike other wasps, parasitic wasps cannot sting people.



Common Name: praying mantid - adult

Scientific Name: Mantidae: several species

Status: beneficial generalist predator

Beneficial Stage: immature and adult

Description: Praying mantids may be one of the most easily recognized insects. They have a large triangular-shaped head with two large, compound eyes and characteristic raptorial front legs that are normally held together as if in prayer. Their bodies are long and narrow, and they have leathery wings that may or may not extend beyond the abdomen. Mantids vary greatly in size but generally range anywhere from 2/5 to 4 inches in length. Camouflage is very important to mantid survival, and colors vary from light greens to browns and pinks. Various species appear as either living or withered leaves, sticks, tree bark, blades of grass, flowers, or even stones.

Common Name: praying mantid

Scientific Name: Mantidae: several species

Status: beneficial generalist predator

Beneficial Stage: immature and adult

Description: Eggs are laid in masses and are often glued to plants or other objects in the environment. After hatching, young praying mantids may be cannibalistic until they have dispersed. Nymphs have a biology and feeding habits similar to adults, but are smaller and lack fully-developed wings.

Praying Mantid Benefit: predation

Scientific Name: Mantidae: several species

Status: beneficial generalist predator

Beneficial Stage: immature and adult

Biology: Praying mantids eat insects and other invertebrates such as beetles, flies, butterflies, crickets, grasshoppers, and even spiders. They pose on plants with their spiny front legs held in front of them, ready to strike, and capture any insect that comes close.

Value: Praying mantids are beneficial because they prey upon many other insects, some of which may be a threat to crops and vegetation. They should be conserved wherever possible.



Common Name: rice weevil - adult

Scientific Name: Curculionidae: *Sitophilus oryzae*

Status: pest of stored cereal products

Damaging Stage: larval and adult

Description: The rice weevil is small (1/10 inch) but has a long, curved snout almost one-third of the total length of the insect. The body is red-brown to black in color with four light yellow or red spots on the corners of the wing covers. Adults chew into the grain kernels from the outside and lay their eggs inside the grain. Adults often live for seven to eight months. There are usually four generations per year.

Common Name: rice weevil - larva

Scientific Name: Curculionidae: *Sitophilus oryzae*

Status: pest of stored cereal products

Damaging Stage: larval and adult

Description: Rice weevil larvae are white- or cream-colored with a small tan-colored head capsule. They are legless, humpbacked, and rarely seen because they stay inside hollowed grain kernels. Larvae develop through several instars and also pupate inside the grain kernels. They may complete a generation in a month in warm conditions.

Rice Weevil Damage: contamination and destruction of grain

Scientific Name: Curculionidae: *Sitophilus oryzae*

Status: pest of stored cereal products

Damaging Stage: larval and adult

Injury: Rice weevils are generally pests of wheat, oats, rye, barley, rice, and corn. Adult females drill a hole into the grain kernel and lay their eggs in the cavity. The hole is plugged with a saplike secretion. Once the eggs hatch, the larvae bore toward the center of the kernel, where they feed and pupate.

Management: The best way to control an infestation is to locate the source and eliminate it. Insecticides should not be used in some instances because food for human consumption is involved.



Common Name: sod webworm - adult

Scientific Name: Pyralidae: several species

Status: serious pest of turfgrass and other plants

Damaging Stage: caterpillar

Description: Adults are buff-colored and have snoutlike projections extending forward from the head. They measure approximately ½ inch long. At rest, a webworm folds its wings around its body, giving it a cigar-shaped appearance. There are usually two generations per year.

Common Name: sod webworm - larva

Scientific Name: Pyralidae: several species

Status: serious pest of turfgrass and other plants

Damaging Stage: caterpillar

Description: Sod webworm larvae are gray to tan with small dark spots on the body. Larvae are approximately 1 inch long when fully mature. They tend to be a brown or green color with darker spots on the surface of the body. The head capsule is a mottled brown color.

Sod webworm larvae overwinter several inches deep in the soil. In the spring, the larvae move upward and feed on new grass growth. In the summer, the larvae bury deeper into the soil to pupate. After two weeks, the new adult moths emerge at night to mate and lay eggs.

Sod Webworm Damage: defoliation

Scientific Name: Pyralidae: several species

Status: serious pest of turfgrass and other plants

Damaging Stage: caterpillar

Injury: Larvae attack the leaves and stems of turfgrass just above the crown. As webworm larvae mature and continue to feed, large brown patches characterize the injured turf areas. The most severe damage usually occurs in July and August.

Management: Cultural, biological, and chemical controls are all effective at suppressing sod webworm populations. There are also resistant turfgrass varieties that can be planted in areas subject to constant infestations.



Common Name: Spittlebug - adult

Scientific Name: Cercopidae: several species

Status: minor pest of agricultural and horticultural crops

Damaging Stage: nymph and adult

Description: Spittlebugs derive their name from the white, frothy spittle the nymphs produce. Adults resemble leafhoppers but can be quite large, measuring approximately 1/3 inch long. The eyes are bright red, and the body color varies from brown to orange. Common species have dark wings with two red stripes that cross the back. They complete two or three generations per year.

Common Name: Spittlebug - nymph

Scientific Name: Cercopidae: several species

Status: minor pest of agricultural and horticultural crops

Damaging Stage: nymph and adult

Description: Spittlebug nymphs resemble small wingless adults. They produce a characteristic white foamy substance that surrounds them as they feed on the sap of a host plant. Spittlebugs can be found on both herbaceous and woody plants.

In late summer, adults lay their eggs, which then overwinter. The eggs hatch in early spring, and the nymphs go through five instars before emerging as adults.

Spittlebug Damage: plant dieback

Scientific Name: Cercopidae: several species

Status: minor pest of agricultural and horticultural crops

Damaging Stage: nymph and adult

Injury: In large populations, twigs and branches may be damaged enough to cause some dieback. Herbaceous plants suffer from the sap feeding as well as the injection of phytotoxic salivary substances during feeding. Weakened pines can suffer in weather conditions that encourage disease.

Management: Spittlebugs rarely occur in large enough numbers to cause enough injury to justify pesticide applications. More often, the spittle masses are considered an aesthetic nuisance because they are unsightly rather than damaging. Chemical controls are the best option for a severe spittlebug infestation.



Common Name: squash bug - adult

Scientific Name: Hemiptera: *Anasa tristis*

Status: pest of vegetable crops

Damaging Stage: nymph and adult

Description: Squash bug adults and nymphs attack all cucurbit vine crops, particularly squash, pumpkin, cucumber, and melon. Adults are rather large (5/8 inch long), winged, brown-black, flat-backed insects that give off a disagreeable odor when crushed. Adults overwinter in the shelter of dead leaves, vines, boards, or buildings. They emerge in the spring to lay masses of eggs on the undersides of leaves. Only one generation develops each year, and new adults do not mate until the following spring.

Common Name: squash bug - nymph

Scientific Name: Hemiptera: *Anasa tristis*

Status: pest of vegetable crops

Damaging Stage: nymph and adult

Description: Squash bug eggs hatch within ten days, and the nymphs pass through five instars in one month. Newly emerged nymphs have light-green-colored abdomens with black heads and legs. As they mature, the abdomen turns a brownish-gray. The final two instars are approximately 1/10 to 1/2 inch long and have noticeable wing pads.

Squash Bug Damage: plant wilting, disease transmission

Scientific Name: Hemiptera: *Anasa tristis*

Status: pest of vegetable crops

Damaging Stage: nymph and adult

Injury: Squash bugs pierce vines with needle-like mouthparts, then inject a toxic substance into the plant. Resulting diseases can cause the plant to yellow, wilt, and die.

Management: Diseases spread by squash bugs can result in severe yield loss. If plants show wilting early in the growing season, chemical control of squash bugs may be required. In most cases however, squash bug populations rarely require chemical control methods. Adults and nymphs can be knocked off plants into buckets of soapy water during a light infestation.



Common Name: stink bug - adult

Scientific Name: Pentatomidae: several species

Status: minor insect pest of crops and a nuisance pest in homes. Can also be a beneficial predatory insect.

Damaging Stage: nymph and adult

Description: Most stink bugs are green or mottled brown/gray in color and grow to about 1/2 inches in length. Stink bugs have broad shield-shaped bodies, with five points (accounting for their scientific name - Pentatomidae). They have a unique behavioral tendency to emit a strong pungent odor when disturbed, accounting for their common name. Some species of stink bugs are predatory on other insects - thus beneficial. Others feed on plants. One species of stink bug, called the brown marmorated stink bug, has recently been introduced to the U.S. This stink bug is proving itself to be a serious pest of agriculture and an irritating invader into homes.

Common Name: stink bug - adult

Scientific Name: Pentatomidae: several species

Status: minor insect pest of crops and a nuisance pest in homes. Can also be a beneficial predatory insect.

Damaging Stage: nymph and adult

Description: Female stink bugs lay their eggs on the undersides of plant leaves or on stems. Eggs hatch and nymphs begin feeding in clusters by inserting their needle-like mouth parts into plants. Feeding and appearance of nymphs is similar to that of adults. Nymphs are smaller than adults and lack fully developed wings, otherwise they may cause the same injury to a plant. Several generation of stinkbugs may occur each year.

Stink Bug Benefit: Some species are predatory; **Damage:** leaf stippling, seed and fruit abortion, and possible diseases transmission

Scientific Name: Pentatomidae: several species

Status: minor insect pest of crops and a nuisance pest in homes. Can also be a beneficial predatory insect.

Damaging Stage: nymph and adult

Value: Some stink bugs eat other insects.

Injury: Stink bugs are occasionally damaging pests of cotton, corn, soybeans, trees, shrubs and sometimes vegetables. The brown marmorated stink bug may also be a home-invading nuisance pest.

Management: Stink bugs may be managed with pesticides when their populations warrant it. To keep them out of homes, exclusion practices must be employed prior to late summer and fall.



Common Name: syrphid fly, hover fly - adult

Scientific Name: Syrphidae: several species

Status: beneficial predator

Beneficial Stage: immature

Description: Adult syrphid flies range from 1/4 to 3/4 inch long. Most adults are black or brown with yellow-banded abdomens, often resembling bees or wasps. Syrphid flies always have just two wings, however, and usually have very large eyes. Some species are hairy and have a long, thin abdomen, while others appear naked and more robust

Common Name: syrphid fly, hover fly - larva maggot

Scientific Name: Syrphidae: several species

Status: beneficial predator

Beneficial Stage: immature

Description: Females lay single eggs on aphid-infested leaves or near another suitable food source. Maggots hatch from the eggs in two or three days and begin to search for food. The larvae are legless maggots and vary in color from creamy white to green or brown. As maggots, they lack an obvious head but do sport mouthparts that are used to impale their victims.

Syrphid Fly Benefit: predation

Scientific Name: Syrphidae: several species

Status: beneficial predator

Beneficial Stage: immature

Biology: Larvae of a few species feed on live plants, but most feed on other insects, primarily aphids. After two or three weeks, maggots pupate, and later, the adult fly emerges. Adults feed on pollen and nectar.

Value: The syrphid fly is considered a beneficial insect because the larval stages are effective predators on insect pests such as aphids. In addition, adult syrphid flies pollinate flowers. Syrphid fly larvae search leaf surfaces for aphids and other suitable prey, such as small caterpillars. Each larva can consume up to 400 aphids during development.



Common Name: termite - white ant

Scientific Name: Isoptera: several species

Status: pest of homes and buildings

Damaging Caste: worker

Description: Termites are small insects that are white, tan, or black. They are less than 1/2 inch long. Termites feed in sound, dry wood and create tunnels that run along the grain of the wood. They are very serious structural pests because they destroy the wood that is used for buildings. Workers are able to eat cellulose-containing materials such as wood because they have microorganisms in their intestines that assist in digesting the cellulose.

Common Name: termite - soldier/worker

Scientific Name: Isoptera: several species

Status: pest of homes and buildings

Damaging Caste: worker

Description: Termites are social insects with three castes (reproductives, workers, and soldiers), each with separate functions in the colony. The reproductives are responsible for producing large numbers of offspring. The workers and soldiers are sterile, wingless, and blind. The workers build the nest, forage for food, and care for the young. The soldiers have enlarged heads and mandibles and defend the colony from intruders.

Termite Damage: destruction of lumber

Scientific Name: Isoptera: several species

Status: pest of homes and buildings

Damaging Caste: worker

Injury: Termite control costs in the United States exceed \$2 billion per year and structural damage falls into the hundreds of billions of dollars. Often mud tubes are the first evidence of termite infestation. The presence of piles of winged termites, especially during the spring, is often a good indicator of an infestation. Weakened and discolored boards and actual presence of the workers themselves are direct evidence of termite infestations.

Management: Termite infestations can be devastating and should be treated by a professional with proper training and equipment. Great advances have been made in both chemical barrier treatments as well as baits.



Common Name: thrips - adult

Scientific Name: Thysanoptera: several species

Status: pest of many plants, particularly in greenhouses

Damaging Stage: nymph and adult

Description: Thrips are slender and minute (1/20 inch long) and have long fringes on the margins of both pairs of their long, narrow wings. Magnification is required to make out important morphological features. Thrips range in color from translucent white to dark brown.

Depending on the species, thrips can undergo anywhere from one to eight generations per year.

Common Name: thrips - nymphs

Scientific Name: Thysanoptera: several species

Status: pest of many plants, particularly in greenhouses

Damaging Stage: nymph and adult

Description: Female thrips deposit eggs in slits made in the leaf tissue. The eggs hatch within a week into active nymphs. The developmental period from egg to adult ranges from eleven days to three weeks. Parthenogenesis occurs in many species.

Nymphs resemble adults in appearance and feeding behavior but lack the coloration and the wings that the adults have.

Thrips Damage: wilting of plants

Scientific Name: Thysanoptera: several species

Status: pest of many plants, particularly in greenhouses

Damaging Stage: nymph and adult

Injury: Thrips prefer to feed on the youngest leaves of a plant. The plant cells are punctured by the rasping-sucking mouthparts, and plant cell sap is withdrawn. Damaged foliage eventually wilts and dies.

Management: Sticky traps can be used to detect thrips population levels. If thrips numbers are large, control options should be considered. Integrated Pest Management strategies using a combination of cultural, biological, and less-toxic chemical controls generally work best to manage thrips infestations.



Common Name: tiger beetle - adult

Scientific Name: Carabidae (formerly Cicindelidae): several species

Status: beneficial predators

Beneficial Stage: immature and adult

Description: Adults are 1/2 inch long and have long antennae and legs. With large, bulging, compound eyes, the head measures wider than the thorax. Adults bear large curved and very functional mandibles. Although colors can vary, common species have spectacular metallic blue, green, and bronze coloration.

Adults are very active and are difficult to approach. They fly and run very quickly, and use these assets to both capture prey and avoid being captured themselves. For their size, they may be considered the fastest running land animal. Tiger beetles have a peculiar behavior of always facing backwards when landing.

Common Name: tiger beetle

Scientific Name: Carabidae (formerly Cicindelidae): several species

Status: beneficial predators

Beneficial Stage: immature and adult

Description: Female tiger beetles lay their eggs in burrows in the soil. Larvae hatch from the eggs, overwinter, and develop through three larval instars. The larvae pupate in the summer and emerge as adults after one month.

Grubs are humpbacked and have a cream-colored abdomen. The larvae darken to brown or black toward the thorax and head. The head is heavily armored and often flexed like a spoon. Larvae also have quite large mandibles for consuming prey.

Tiger Beetle Benefit: predation

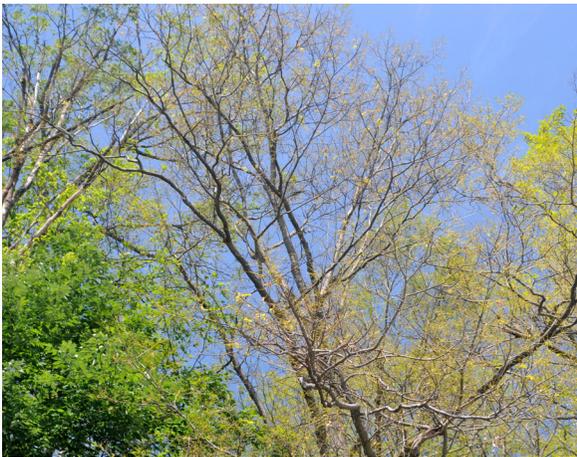
Scientific Name: Carabidae (formerly Cicindelidae): several species

Status: beneficial predators

Beneficial Stage: immature and adult

Biology: Tiger beetles are unique because of their aggressive predatory habits and running speed.

Value: Both larvae and adults are predators. They usually occur in open spaces, often around river banks and lakeshores. Tiger beetles are voracious feeders on other small insects in their environment. As such, they are considered beneficial.



Common Name: tussock moth - adult

Scientific Name: Lymantriidae: several species

Status: pest of forest and shade trees

Damaging Stage: caterpillar

Description: Adult appearance varies widely by species. Usually they are 1/2 to 4/5 inch long and are much less conspicuous than are the ornate and colorfully bristled caterpillars. In some species, females are wingless, but males have white, gray, or brown forewings mottled with wavy black or brown marks and gray hindwings. The females lay their eggs in a mass. The eggs hatch in early spring, and the larvae feed and grow for four to six weeks. The pupal stage lasts for about two weeks. The adults emerge, fly, and mate in late spring. There are either one or two generations per year, depending on the species.

Common Name: tussock moth - caterpillar - larva

Scientific Name: Lymantriidae: several species

Status: pest of forest and shade trees

Damaging Stage: caterpillar

Description: Young caterpillars are often black with long body hairs. As they mature, they produce brightly colored tufts of hair. Fully mature larvae are approximately 1 to 1 1/2 inches long with a gray-brown abdomen and a shiny black head.

Tussock Moth Damage: defoliation

Scientific Name: Lymantriidae: several species

Status: pest of forest and shade trees

Damaging Stage: caterpillar

Injury: Tussock moth larvae attack more than sixty tree species, but the common hosts are maple, horse chestnut, birch, apple, sycamore, poplar, linden, elm, rose, fir, and larch. They devour all leaf tissue but the main vein and the petiole.

Management: Larvae are usually insignificant pest insects, but may sometimes warrant control measures. Caterpillars can be removed from trees with tweezers and knocked into buckets of soapy water, though the people doing this are advised to wear long-sleeved shirts to prevent caterpillar hairs from irritating the skin. Insecticides are usually not necessary to control tussock moths.



Common Name: vinegar fly, fruit fly - adult

Scientific Name: Drosophilidae: *Drosophila* spp.

Status: nuisance pest of homes and restaurants

Damaging Stage: larval and adult

Description: Vinegar flies are small (1/10 inch), delicate flies. They have red eyes, are yellow-brown in color, and have transverse black rings across their abdomen. Vinegar flies are most often found flying about ripening fruit, clogged drains, or dirty garbage cans where they mate and lay eggs. Populations build up very quickly. The time required to complete one life cycle ranges from eight to twenty days. They may complete from ten to thirteen generations per year.

Common Name: vinegar fly - larvae

Scientific Name: Drosophilidae: *Drosophila* spp.

Status: nuisance pest of homes and restaurants

Damaging Stage: larval and adult

Description: Adult females lay eggs near moist, fermenting food material, such as overripe fruit, rotten vegetables, or residues left in garbage containers, and drains. When the eggs hatch, the larvae feed near the surface of the fermenting food masses.

The seldom-seen larvae are cream-colored, lack a sclerotized (hard) head capsule, and have a tapered head and extended, fleshy tubes on the last body segment.

Vinegar Fly Damage: nuisance and food contamination

Scientific Name: Drosophilidae: *Drosophila* spp.

Status: nuisance pest of homes and restaurants

Damaging Stage: larval and adult

Injury: Vinegar fly populations can be an annoyance to homeowners even when in low numbers. Food handling establishments must proactively deal with them, due to contamination.

Management: Removal of breeding sites (rotting fruit, full garbage bins, food leftovers) is paramount to getting rid of vinegar flies. Fruits and vegetables should be stored properly in a refrigerator and thrown away if they become overripe.



Common Name: western corn rootworm - adults

Scientific Name: Chrysomelidea: *Diabrotica virgifera* LeConte

Status: serious pest of corn

Damaging Stage: larval and adult

Description: Adults are approximately 1/4 inch long and have relatively long antennae. The coloration varies some but most are yellow with three black stripes running down the lengths of the wing covers. The wing covers of males may be entirely black except for narrow yellow margins and yellow tips.

Common Name: western corn rootworm - larva

Scientific Name: Chrysomelidea: *Diabrotica virgifera* LeConte

Status: serious pest of corn

Damaging Stage: larval and adult

Description: Western corn rootworm larvae are cream-colored and approximately 1/2 inch long. They have a brown head capsule and are generally found in corn or soybean fields.

Adults emerge and mate in midsummer, and females begin laying eggs about two weeks after emergence. The eggs hatch the following spring. The newly hatched larvae find their way to corn roots, bore in, and begin feeding. The larval stage lasts about three weeks, then they move into the soil to pupate.

Western Corn Rootworm Damage: root pruning and silk clipping

Scientific Name: Chrysomelidea: *Diabrotica virgifera* LeConte

Status: serious pest of corn

Damaging Stage: larval and adult

Injury: Larvae feed on the roots and root hairs of corn and can reduce crop yield. Adults also feed on emerging silks and may interfere with pollination when their populations are high.

Management: Rootworms are managed by using pesticides applied to the soil at planting. Crop rotation practices also are a popular cultural method of regulating corn rootworm populations. However, new rootworm variants that can feed in soybean and corn fields are forcing growers to consider new control options such as planting transgenic corn varieties.



Common Name: yellowjacket - adult

Scientific Name: Vespidae: several species

Status: painful and potentially lethal sting; otherwise beneficial

Damaging Stage: adult

Description: Yellowjackets are smaller than their close relatives—hornets and paper wasps—but they occur in larger colonies, sometimes with several hundred workers. They are usually bright yellow with black dots and stripes across their abdomens. While yellow jackets can sting and harm humans, they are invaluable predators of crop-damaging pests such as flies and caterpillars. When defending themselves or their nests, however, yellowjackets can become very aggressive and may sting repeatedly. The sting is always painful but even can be life-threatening, depending on an individual's allergic reaction to the venom.

Common Name: yellowjacket

Scientific Name: Vespidae: several species

Status: painful and potentially lethal sting; otherwise beneficial

Damaging Stage: adult

Description: A new queen leaves the nest during the fall, mates, and passes the winter under leaf litter or the bark of trees. In the spring, the queen starts a colony by building a gray paper nest, usually underground or in a wall void or other cavity, in which she lays eggs and cares for the developing larvae. Immature yellowjackets are white, grub-like larvae. They are rarely ever seen unless the nest is torn open. The queen remains inside the nest and focuses primarily on reproduction. By late in the season the nest can become very large and be home to many yellowjackets. There is only one generation per year.

Yellowjacket Benefit: predation

Scientific Name: Vespidae: several species

Status: painful and potentially lethal sting; otherwise beneficial

Damaging Stage: adult

Value: Predators of other possible pest insects.

Injury: A nest constructed on or near a home can be a potential threat to people. Nests well away from human activity should be left alone because of the beneficial nature of yellowjackets.

Management: Yellowjackets often forage in and around trash receptacles or ripened fruits. Simply removing or temporarily relocating these will be enough to reduce human/yellowjacket encounters. If yellowjacket nests are found near people, insecticides can be used to control them.