

Insects Of Lake Arrowhead State Park, Clay County, TX

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and
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[Eastern Hercules Beetle](#)

Dynastes tityus, the *Eastern Hercules Beetle*, is a species of rhinoceros beetle that lives in the Eastern United States and one of the largest beetles in North America. The male can be up to 7" long'. The males also have the longest horns, which they use to fight over females. The horns can be up to a third of the male's body length. The adult's elytra are green, gray or tan, with black markings, and the whole animal, including the male's horns, may reach 2.4" in length. The larvae are large, white, C-shaped grubs. The larvae feed on rotten material (logs, stumps, dead leaves and rotten fruit). They stay in the larval stage up to a year. The adults only live for 3-6 month.



[Rainbow Scarab](#)

Phanaeus vindex, the **rainbow scarab**, is a North American dung beetle, with a range from the eastern US to the Rocky Mountains. The head is a metallic yellow color, and males have a long black horn which curves backward toward the thorax. The female's horn is much reduced, but she is larger than the male. Both sexes have yellow antennae which can retract into a ball on the underside of the head. The thorax is

a shiny coppery color, with yellow or green on the sides. The abdomen is metallic green. The underbelly is black and green. Body length is about 2–3 cm (0.8–1.2 in) long. Males and females work in pairs to dig burrows beneath animal excrement. They move some of the excrement down into the tunnel, where the female lays her eggs in it. The grubs feed on the excrement until pupating. This species, like all dung beetles, are not pests, and play an important role in pasture ecology by reducing fecal matter in the environment, thus reducing the number of disease spreading flies. (Photo by D. Halter)



[Gazelle Scarab](#)

Digitonthophagus gazella (common names: **gazella scarab**, **brown dung beetle**) is a species of scarab beetle. Its native distribution is Afro-Asian. It has been introduced to many other parts of the world in order to help remove cattle dung from pastures. Intentionally introduced into Texas for dung control in the 1970, and it's now, perhaps, the most widespread dung beetle in tropical and subtropical pastures. The male has two short horns. They can be drawn to lights at night. (Photo by D. Halter)



Phileurus valgus

Phileurus valgus is a species of rhinoceros beetle in the family Scarabaeidae. It is widely distributed in the southeastern states. It can be found under the bark of decaying wood and is attracted to lights.



Harlequin Flower Beetle

Gymnetis caseyi, the harlequin flower beetle, is a species of scarab beetle in the family Scarabaeidae. The adults are pollinators eating flower pollen and nectar. They will also eat rotting fruit. The larvae eat decayed wood and rotting plant matter. Although large, they are not harmful. (Photo by D. Halter)



Phyllophaga cibrosa

Phyllophaga cibrosa is a species of scarab beetle in the family Scarabaeidae. It is found in Central America and North America. It is rather easily recognized within the genus by its oval, convex shape, shining black coloration, cibrose (perforated like a sieve) surface, 10-segmented antennae, and flightless nature. While most species of *Phyllophaga* are nocturnal and capable of flight, adults of *P. cibrosa* are flightless and can be found crawling on the ground and clinging to low vegetation during the day. The species is said to be an occasionally serious pest of crops although it may be that, in most cases, this results from new plantings of crops in former grasslands because of the limited dispersal abilities of the beetles. (Photo by D. Halter)



Texas Flower Scarab

Trichiotinus texanus, the Texas flower scarab, is a species of scarab beetle in the family Scarabaeidae. The beetle is reported to feed on pollen of a number of different species of flowers ranging from roses to irises to certain grasses. The adults are found in fields, meadows and thickets and are abundant in early spring (April-May). Their larval habitat is reported to be in the nests of pack rats or mounds of soil

associated with other ground dwelling rodents like pocket gophers. (Photo by D. Halter)



Seven-spotted Ladybug

Coccinella septempunctata, the **seven-spot ladybird** (or, in North America, **seven-spotted ladybug**), is the most common ladybird in Europe. Its elytra are of a red color, but punctuated with three black spots each, with one further spot being spread over the junction of the two, making a total of seven spots, from which the species derives both its both its common and scientific names (from the Latin *septem* = "seven" and *punctus* = "spot").

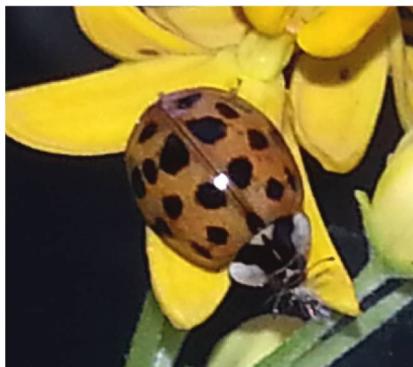


from which the species derives both its both its common and scientific names (from the Latin *septem* = "seven" and *punctus* = "spot"). The main prey for both adults and larvae is aphids. (Photos by D. Halter)



Convergent Lady Beetle

Hippodamia convergens is one of the most common lady beetles in North America and is found throughout the continent. It is an important natural enemy of aphids, scales, thrips, and other soft-bodied insects. It will also feed on pollen and nectar from flowers when prey is scarce. This species can be found in habitats ranging from grasslands, forests, agricultural fields, gardens, and natural parks. It is one of the few natural enemies that are currently wild-collected from mass aggregations for distribution to the pest control industry. In some areas, the convergent lady beetle, along with other native species, may be displaced by the invasive Asian multicolored ladybeetle, *Harmonia axyridis*. (Photo by D. Halter)



Asian Lady Beetle

Harmonia axyridis, most commonly known as the **harlequin, multicolored Asian**, or simply **Asian ladybeetle**, is one of the most variable species in the world, with an exceptionally wide range of color forms. It is native to eastern Asia, but has been artificially introduced to North America and Europe to control aphids and scale insects. It is now common, well known, and spreading in those regions. Although Ladybugs and Asian lady beetles look similar and belong to the same insect family, they don't behave similarly.

Other Ladybugs are considered highly beneficial, harmless insects. They don't bite, they consume several harmful garden pests such as aphids, and they never congregate in large numbers. Most importantly, when it gets cold out they seek shelter *outdoors*. Asian lady beetles hunt garden pests, too, but that's where the similarities end. Asian lady beetles are considered a true pest. Unlike ladybugs, Asian lady beetles will gather in large groups, especially around warm, reflective surfaces like windows. Asian lady beetles "bite" by scraping the skin they land on, and leave a yellow, foul-smelling liquid on surfaces where they gather. This liquid can also act like glue. Many pets that have

eaten one will have it stuck inside their mouths. If a large number are eaten, the pet will be in distress and will require a trip to a veterinarian to remove them. The easiest way to tell Asian lady beetles apart from ladybugs at a glance, Asian lady beetles have a distinctive, highly-visible “M-shaped” black marking on their otherwise-white heads. This marking varies in size, thickness, and overall shape, but it’s always there. (Photo by D. Halter)



Ashy Gray Lady Beetle

Olla v-nigrum, the ash gray lady beetle, is a species in the family *Coccinellidae* ("lady beetles"), in the suborder Polyphaga . The distribution range of *Olla v-nigrum* includes Central and North America. They are not the typical bright color of other lady beetles and tend to prefer to patrol trees, hunting for prey (mostly aphids) that roam the tree tops. There are two color forms – gray with black spots and black with two red spots.



Spotted Cucumber Beetle

The **spotted cucumber beetle** (*Diabrotica undecimpunctata*) is a major agricultural pest insect of North America (see also cucumber beetle). Spotted cucumber beetles cause damage to crops in the larval and adult stages of their life cycle. Larvae, which are known as the **southern corn rootworm**, feed on the roots of the emerging plants, which causes the most damage since the young plants are more vulnerable. In the adult stage,

the beetles cause damage by eating the flowers, leaves, stems, and fruits of the plants. The beetles can also spread diseases, such as bacterial wilt and mosaic virus. (Photo by D. Halter)



Nodding Thistle Receptacle Weevil

Rhinocyllus conicus is a species of true weevil. Native to Europe and Western Asia, it introduced as an agent of biological pest control which has been used against noxious invasive thistles in the genera *Carduus*, *Cirsium*, *Onopordum*, and *Silybum*. Unfortunately, it has become an invader itself, eating native thistles (some already rare) when the non-natives are not available.



White-fringed Weevil

Adults of the White-fringed Weevil, *Naupactus leucoloma*, are large flightless weevils with a lighter colored stripe along the side of the body. Larvae feed on roots, mostly of legumes, and are generally more damaging than adults. Larvae are

extremely difficult to control. This weevil is a native of South America. Larvae are soil dwelling, legless grubs and have a slightly curved body. Adults are large flightless weevils, growing up to a ½" long. They are light to dark grey or brown with distinct hairs. They have a lighter band along the outer margins of the wing covers, with two paler longitudinal lines on each side of the thorax and head, one above and one below the eye. They have a short broad snout. (Photo by D. Halter)



Ironweed Curculio

Rhodobaenus tredecimpunctatus, known generally as the **ironweed curculio** or **cocklebur weevil**, is a species of snout or bark beetle in the family Curculionidae. It is found in North America. It feeds on ironweed, cocklebur, and members of the Asteraceae family. (Photo by D. Halter)



Burning Blister Beetles

Epicauta is a genus of beetles in the blister beetle family, Meloidae. The genus was first scientifically described in 1834 by Pierre François Marie Auguste Dejean. *Epicauta* is distributed nearly worldwide, with species native to all continents except Australia. Surveys have found the genus to be particularly diverse in northern Arizona in the United States. Adult beetles vary in color from yellow, to gray, to black and feed on plants. The larvae are predators on the eggs of grasshoppers. The beetles can significantly damage plants, and many *Epicauta* are known as agricultural pests around the world, even known to cause crop failures at times. As do other blister beetles, these produce cantharidin, a toxic terpenoid. They live in flower beds and grassy fields, and congregate around outdoor lights in the evenings. The welts or blisters on your skin are a reaction to cantharidin; an odorless, colorless chemical the beetle releases to protect itself against its enemies. Cantharidin is highly toxic and dangerous to a blister beetle's enemies. Contact with the substance, however, can cause a local skin reaction, but can kill animals, such as horses, if they ingest enough of the beetles (usually in hay). Blisters caused by exposure to cantharidin can form on any exposed skin, such as the face, neck, arms, and legs. You may develop a blister or welt after a blister beetle crawls on your skin, or if you crush a blister beetle on your skin. (Photo of gray by D. Halter)



Brown Blister Beetle

Epicauta immaculata, the **immaculate meloid** or **Brown Blister Beetle**, is a species of blister beetle in the family Meloidae. It is found in Central America and North America and can be a serious pest to garden vegetables. Eggs are laid in

soil. The young larva is yellowish white with a brown head, long-legged, and mobile. After remaining in the egg cavity for 1-2 days, it forages actively for grasshopper eggs. Upon locating a supply of food the larva commences feeding. After several molts, the young overwinter underground. They emerge as hungry adults the next spring. They feed voraciously for 7-10 days and then begin laying eggs. Adults are quite gregarious and sometimes assemble in very large numbers. They are very toxic to horses. (Photo by D. Halter)



Shiny Flea Beetle

Asphaera lustrans, the **shiny flea beetle**, is a species of flea beetle in the family Chrysomelidae. It is found in Central America and North America. The name comes from their habit of hopping, and their back legs are enlarged to help with this escape mechanism. To evade predators, sometimes they hop and then fly away. (Photo by D. Halter)

Tiger Beetles

Known for their aggressive predatory habits and running speed, have large bulging eyes, long, slender legs and large curved mandibles. It is predatory, both as adults and as larvae. The genus *Cicindela* has a cosmopolitan distribution. Members of the genus are usually diurnal and may be out on the hottest days. The larvae of tiger beetles live in cylindrical burrows as much as a meter deep. They are large-headed, hump-backed grubs and use their humpbacks to flip backwards, for the purpose of capturing prey insects that wander over the ground. The fast-moving adults run down their prey and are extremely fast on the wing, their reaction times being of the same order as that of common houseflies. Three species have been observed in the Park. (Photos by D. Halter)



Ocellated Tiger beetle
(Cicindela ocellata)



Punctured Tiger Beetle
(Cicindela punctulata)

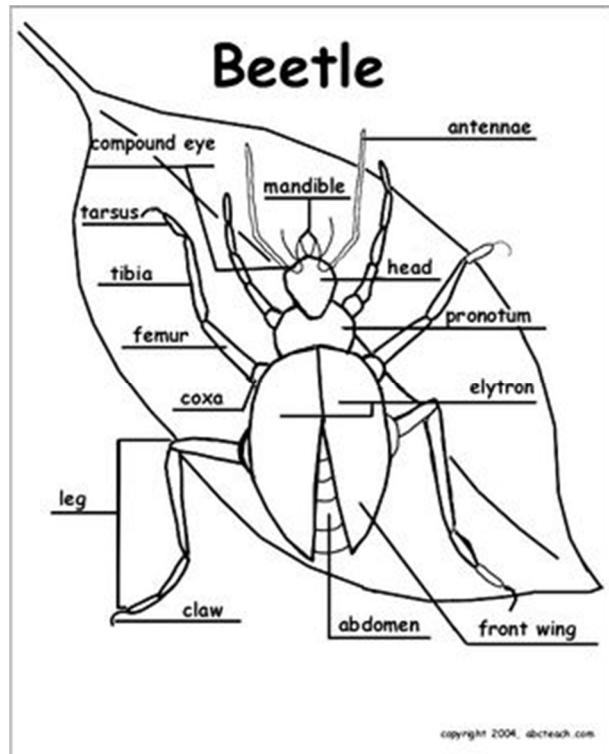


Thin-lined Tiger Beetle
(Cicindelidia tenuisignata)



Sylvan Worm and Slug Hunter

Carabus sylvosus, the Sylvan Worm and Slug Hunter (or Woodland Ground Beetle), is a species of large ground beetle in the family **Carabidae**. It is found in North America. It is dull black with purplish edges with three rows of shallow pits on each elytron. Sometimes the entire back shows a purplish cast. This is a flightless beetle. It can be told from the similar Halderman's by the color and the shape of the pronotum (Sylan is rounder, while Halderman's is straighter).



Beetle Anatomy



Halderman's Worm and Slug Hunter

Halderman's Worm and Slug Hunter, *Carabus finitimus*, is a black ground beetle with blue edges and is species of beetle in the family Carabidae. It is found in continental United States. As its name suggests, this species and its kin are hunters of other insects, especially caterpillars. It can be told from the Sylvan by the color and shape of the pronotum. (Photo by D. Halter)



Blue-margined Ground Beetle

The Blue-margined Ground Beetle, *Pasimachus elongatus* is a species of ground beetle in the family Carabidae. It is found in Central America and North America. This is a large ground beetle, 1 inch (25 mm) or more in length. It can be found throughout the year under stones and boards. The prothorax and elytra are smooth and have a blue border. The

jaws are large and they can inflict a painful bite. This beetle emits a foul-smelling liquid as an additional defense.



Fiery Searcher

Calosoma scrutator is a fast-moving species of ground beetle. Found throughout North America. This species is especially attractive in appearance with its striking bright, metallic colors, and is one of the continent's largest ground beetles (family Carabidae). This ground beetle is predatory in both the larval and adult stages, as is typical of the tribe Carabini, thus earning it the common name caterpillar hunter. The larvae feed night

and day, actively preying on butterfly and moth caterpillars. It is documented to fly only rarely, but is one of the few species in the genus *Calosoma* that can climb shrubs and trees in order to forage. Both adults and larvae climb shrubs and trees in search of prey, such as tent caterpillars and gypsy caterpillars. Although striking in appearance, these insects should be approached with care. As well as being able to give a nasty bite, most beetles within the genus *Calosoma*, the Fiery Searcher included, are equipped with scent bladders/glands that can defensively release a fluid with a strong musky odor. The fluid found within these scent bladders/glands contains compounds similar to methacrylic acid and can leave a lingering, unpleasant odor upon contact. Adults can live between 2-4 years. Their large size, defensive chemicals and mandibles specialized for predation make these beetles top invertebrate predators in forest ecosystems.



Texas Bumelia Borer

Plinthocoelium schwarzi is a species of beetle in the family Cerambycidae. It was described by Fisher in 1914. Members of this genus in the tropics give off an alarm pheromone when disturbed, causing related species in the vicinity to take flight. Larvae feed in the root crowns of Bumelia species. Most insect borers are attracted to weakened, damaged, dying or dead plants. (Photo by T. McKee)



Painted Hickory Borer

Megacyllene caryae, the Painted Hickory Borer, is a species of beetle in the family Cerambycidae occurring in the eastern United States. This native beetle doesn't present a risk to wood furniture, flooring, paneling, or other processed wood in homes, or wood used in home construction. They are just

nuisance pests if they find their way into homes. However, their sudden appearance can be a surprise and cause concern; particularly inside log homes. Painted hickory borers will only infest dead trees that died within one year or raw wood (e.g. firewood) that has been cut for less than one year. They target a wide range of hardwoods including their namesake host as well as ash, black locust, hackberry, honey locust, oak, Osage orange, walnut, butternut, and occasionally maple. They are considered forest products pests because they may infest fresh-cut logs used for lumber or firewood. However, they also play an important role in forest ecosystems. Both serve in the "clean-up crew" by starting the biodegradation process to convert

large wood fibers into smaller organic particles that ultimately support soil microorganisms important to soil health. (Photo by S. Underwood)



Batyle suturalis

Batyle suturalis is a species of beetle in the Cerambycidae family. It was described by Thomas Say in 1824. **Cerambycidae** is a cosmopolitan family of beetles characterized by their extremely long antennae, which are sometimes up to 2.5 as longer than the beetle's body. Most adult cerambycids feed on flowers and pollen, and can be important pollinators of flowering plants. Many longhorns are serious agricultural pests, as their larvae have the unfortunate habit of boring wood. (Photo by D. Halter)



Three-ribbed Darkling Beetle

Eleodes tricostata is one of the most common and most important false wireworms in Kansas. It is entirely black with an ash-gray tinge. Wing covers have 4 major ridges and 3 lesser ones extending from front to back and appear quite rough surfaced. They are united along the middle, and the beetles do not fly. The body is stout and relatively thick. Typical of native prairies, this species has been forced out of its normal habitat and with the reduction of its native food, can become a serious pest of wheat.



Great Golden Digger Wasp

Sphex ichneumoneus, known commonly as the **great golden digger wasp** or **great golden sand digger** is a wasp in the family Sphecidae. It is identified by the golden pubescence on its head and thorax, its reddish orange legs, and partly reddish orange body. This wasp is native to the Western Hemisphere, from Canada to South America. Benign, non-aggressive, and gentle, this wasp feeds on flower nectar. The female digs a tunnel in loose soil and adds a paralyzed grasshopper, and lays one egg on it. She digs numerous tunnels in an area. She does not defend her nest.



Cicada Killer

Stizus texanus is a member of sand wasps belonging to the family Crabronidae. There are over 100 species worldwide. These wasps can reach a length of about 1.3 ". They are yellow and black, large and formidable looking. In mid- to late-summer, the female uses her stinger to paralyze cicada, which she then places in a burrow with a single egg deposited on it. The larva that hatches from the egg overwinters in its burrow, feeding on the cicada. Despite their appearance, they rarely sting, wanting nothing to do with humans. They do not defend their nests. The male does defend a territory, even from people walking or mowing nearby, but does not have a stinger and is harmless. It can be hard to remember the lack of danger when you're staring down a larger wasp, though.



Texas Crown Wasp

Megischus texanus is a member of the Stephanidae, an easily recognized family. The head is almost spherical and is often described as "globular", with a few small spines around the median ocellus. The females have an ovipositor that is as long as or longer than the body. Stephanids are all parasitoids of

wood boring beetle larvae (Coleoptera) and wood wasps (Hymenoptera: Siricidae). The females insert their long ovipositors into wood to reach the host larvae.



Wool-bearing Gall Wasp

The wool-bearing gall wasp, *Andricus quercuslanigera*, causes a woolly gall on the midrib of the leaves of live oak. Live oak is the only known host plant of the woolly leaf gall wasp. The abnormal growths developing in oak tissue are due to the powerful enzymes given off by the immature gall-forming insect as it grows. The plant tissue is remarkably altered even to the point of replication of chromosomes without cell division. Many gall wasps develop for 2 or 3

years in woody galls on the twigs of oaks. Adults then emerge from the twig galls during the winter. They lay eggs in the buds and die. When new growth resumes on the oak, these eggs hatch. Salivary secretions of the gall wasp grub act as powerful plant growth regulators and force the tree to form a gall. Gall wasp galls typically have an outer wall, a spongy fiber layer and a hard, seedlike structure inside of which the gall wasp grub develops. Although gall wasp grubs have chewing mouthparts, they do not seem to chew plant tissue. Evidently the gall secretes nutrients the grubs lap up. For the most part, leaf galls on oak are harmless, except for the anxiety they cause the homeowner.

Yellow-legged Mud Dauber



Also known as the Black and yellow mud dauber, the **Yellow-legged Mud Dauber** is a common name for the sphecid wasp species *Sceliphron caementarium*. They are solitary insects that build nests out of rings of mud formed into multiple tubes joined together, in sheltered locations, frequently on man-made structure such as bridges, barns, open porches or under the eaves of house, anywhere they are safe from the rain. They have been known to clog carburetors on boat motors. These nests are not aggressively defended, and stings are rare.



Common Blue Mud Dauber

The **common blue mud dauber**, *Chalybion californicum*, is a metallic blue species of mud dauber wasp that preys primarily on black widow spiders. It does build a nest, but will refurbish nests abandoned by other mud dauber wasps. Like other mud daubers, it is rarely aggressive. *Chalybion californicum* feeds on nectar and is a pollinator of some

common wildflowers. While the adults feed on flowers, they feed their developing larvae high protein foods like spiders (often the black widow, *Latrodectus* spp.). The Blue Mud Wasp captures these spiders by grabbing them from their webs, or alternatively, luring them out of their place of protection. The wasp then uses its sting to immobilize the spider, preparing a meal for its developing young.



Long-tailed Giant Ichneumonid Wasp

Megarhyssa macrurus (common name giant ichneumon wasp), is a species of large ichneumon wasp. It is notable for its extremely long ovipositor which it uses to deposit an egg into a tunnel in dead wood bored by its host. Another of its common names is stump stabber, referring to this behaviour. They are parasitoids on the larvae of the pigeon horntail, a type of wood boring wasp, which bore tunnels in decaying wood. Female *Megarhyssa macrurus* are able to detect these larvae through the bark; they paralyses them and lay their eggs on the living but paralyzed larva; within a couple of weeks the *Megarhyssa* larvae will have consumed their host and pupate, emerging as an adult the following summer. Females can be up to 2" long, including the ovipositor.



Velvet Ants

The **Mutillidae** are a family of more than 3,000 species of wasps whose wingless females resemble large, hairy ants. Their common name **velvet ant** refers to their dense pile of hair which most often is bright scarlet or orange, but may also be black, white, silver, or gold. Black and white specimens are sometimes known as **panda ants** due to their hair coloration.

They are not aggressive; however, they can deliver an extremely painful sting in self-defense. One common nickname is “cow killer”, in reference to the pain the sting inflicts. They are solitary. The males are winged, but do not have a stinger. The female lays her eggs in the nests of wasps or bumble bees. The larva then eats the hosts young. Adult velvet ants feed on nectar.



Metric Paper Wasp

Like other *Polistes* species, *Polistes metricus*, has evolved to live socially and demonstrates behaviors including nestmate discrimination and local mate competition. Like the other members of the order *Hymenoptera*, *Polistes metricus* females hatch from fertilized eggs, males from unfertilized ones. They also gather fibers from dead wood and plant stems, which they mix with saliva and use to construct nests of gray papery material. *P. metricus* have distinct characteristics, like the ability to share nests with other

Polistes species and reuse nests multiple seasons. Another distinction is that *Polistes metricus* foragers take off from their nests depending on how long their trip will be. For short flights, they exit the nest flying horizontally, while for long flights, they exit the nest flying straight up into a high altitude before pursuing their direction. *P. metricus* prefers to consume soft-bodied prey, especially caterpillars.



Dark Paper Wasp

Polistes fuscatus, whose common name is the **dark** or **northern paper wasp** is widely found throughout southern Canada, the United States, Mexico, and Central America. These wasps are very slender and have a waist connecting the thorax and the abdomen. They are a dark reddish-brown and the body is segmented by yellow bands. Their pointed heads distinguish them from yellow jackets. In males, the tips of the antennae are strongly curved and there is more yellow marking the front of the head. It often nests around human development. However, it greatly prefers areas in which wood is readily available for use as nest material, therefore they are also found near and in woodlands and savannas. *P. fuscatus* is a social wasp that is part of a complex society based around a single dominant queen along with other cofoundresses and a dominance hierarchy. The female has a venomous sting. Adult

P. fuscatus feed mainly on plant nectar. The species is considered insectivores because it kills caterpillars and other small insects to provide food for the developing larvae.



Apache Paper Wasp

Polistes apachus is a social paper wasp native to western North America. It is commonly referred to as the "apache wasp" and is the most common *Polistes* species. It can be found in more urban areas. It is a type of paper wasp, which is the common name for a type of wasp that builds a nest (called a comb) out of a papery substance. The combs are built using

wood fibers that the wasps scrap off old weathered pieces of wood. The wasps appear to prefer certain pieces and return to these repeatedly, sometimes congregating on a particular spot. The original wasp that starts a comb is called a foundress. The comb is made up of multiple cells and can grow quite large. This species captures caterpillars that it paralyzes and puts into a cell in the comb for the developing larvae to feed on. Unlike honey bees, wasps can sting multiple times. They can be quite aggressive in the defense of their combs.



Guinea Paper Wasp

Polistes exclamans is a social wasp and is part of the family Vespidae of the order Hymenoptera. It is found throughout the United States, Mexico, the Bahamas and parts of Canada. Due to solitary nest founding by queens, *P. exclamans* has extended its range in the past few decades and now

covers the eastern half of the United States, as well as part of the north. This expansion is typically attributed to changing global climate and temperatures. *P. exclamans* has three specific castes, including males, workers, and queens, but the dominance hierarchy is further distinguished by age. The older the wasp is, the higher it is in ranking within the colony. In most *P. exclamans* nests, there is one queen who lays all the eggs in the colony.



Ringed Paper Wasp

***Polistes annularis* (*P. annularis*)** is a species of paper wasp found throughout the eastern half of the United States. This species of red paper wasp is known for its large size and its red-and-black coloration and is variably referred to as a **ringed paper wasp** or **jack Spaniard wasp**. It builds its nest under overhangs near bodies of water that minimize the amount of sunlight penetration. It clusters its nests together in large aggregations, and consumes nectar and other insects. Its

principal predator is the ant, although birds are also known to prey on it. Unlike other wasps, *P. annularis* is relatively robust in winter conditions, and has also been observed to store honey in advance of hibernation



Western Honey Bee

The **western honey bee** or **European honey bee** (*Apis mellifera*) is the most common of the 7–12 species of honey bee worldwide. Despite its abundance, the Western Honey Bee is not native to the Americas. It naturally occurs in Europe, the Middle East, and Africa, subspecies of the western honey bee have been spread extensively beyond their natural range due to economic benefits related to pollination and honey production.

It should be noted that native bees pollinate more food items than the honey bee does. The honey bee hive consists of one fertile female (the queen) and numerous sterile female bees (workers), and a few males (drones). All of these are related to the queen. Honey bees can communicate through a “waggle dance”. By performing this dance, successful foragers can share information about the direction and distance to patches of flowers yielding nectar and pollen, to water sources, or to new nest-site locations with other members of the colony. When the colony outgrows its current hive, the queen lays a new queen and departs with many of the workers (called a swarm), to establish a new colony. The remaining workers care for the new queen and stay in the current hive. Swarming usually happens in the spring. (Photo by D. Halter)



Squash Longhorn Cuckoo

***Tripeolus remigatus*, the Squash Longhorn Cuckoo** (formerly **Anchor-marked Cuckoo Nomad Bee**), is a species of cuckoo bee in the family Apidae. It is found in Central America and North America. Female cuckoo bees enter the underground nests of other bees to lay eggs. Sometimes, the cuckoos devour the eggs of the host bees that built the nests (in this case, Squash Bees). More commonly, the cuckoos depart the nests, leaving behind both their own eggs and their host's. When the eggs hatch, the cuckoo larvae kill off the host bee's larvae and feed on pollen and nectar the host parent deposited in her brood

cells for her own offspring. Cuckoo bees do not gather pollen from flowers, because they obtain it instead by plundering other bees' nests. As a result, female cuckoo bees do not have *scopae*, or pollen-collecting hairs. To the naked eye, cuckoo bees often appear hairless and sleek-bodied like wasps. Cuckoos sometimes have spade-shaped abdomens or other traits that allow them to dig into other bees' nests, and cuckoos generally act differently than their hosts -- many cuckoos spend much of their time skulking around on the ground, looking for their hosts' nests, rather than visiting flowers. Cuckoo bees do, however, drink nectar from flowers. They often gather on the very blossoming plants that their hosts prefer. Each cuckoo species tends to target a particular bee species or group.



Tooth-bellied Long-horned Bee

Melissodes dentiventris is a species of long-horned bee in the family Apidae. It is found in North America and prefers sandy soils.



Eastern Carpenter Bee

Xylocopa virginica, more commonly known as the **eastern carpenter bee**, extends through the Eastern United States and into Canada. They are beneficial pollinators that are similar in appearance to bumble bees. But carpenter bees do not have a buzzy abdomen. They nest in various types of wood and eat pollen and nectar. These are a solitary bee. Females

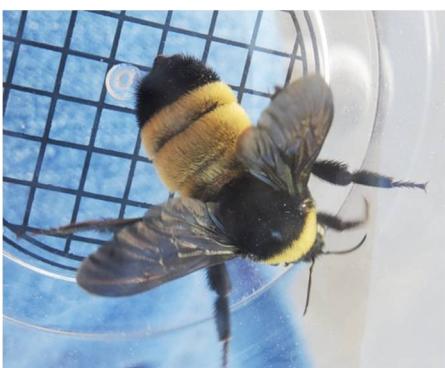
use their strong jaws to carve out a burrow in wood, such as fence posts, tree trunks, fallen logs, even decking. Although the burrows can be unsightly, they rarely cause any structural damage. The female lays one egg in each burrow, with a ball of pollen grains as food for the larva. Males do not have a stinger. Females rarely sting. (Photo by D. Halter)



Oblique Longhorn

Svastra obliqua, the Oblique Longhorn or more commonly, the sunflower bee, is a species of long-horned bee in the family Apidae. It is found in Central America and North America. These hefty, shaggy bees are best known as sunflower pollinators. They usually emerge in later summer or fall. The presence of Svastra in an area usually indicates a high-quality grassland habitat that is interlaced with a

healthy population of wildflowers. They are ground-nesting solitary bees, but will sometimes build nests close to each other in large groups. Females are known to share nest with each other. Each bee will provision her own egg chambers with food stores for her offspring, while jointly excavating tunnels and nest entrances with other females.



American Bumble Bee

Bombus pensylvanicus, the **American bumblebee**, is a threatened species of bumblebee native to North America. *Bombus pensylvanicus* tends to live and nest in open farmland and fields. It feeds on several food plants, favoring sunflowers and clovers. Once the most prevalent bumblebee

in the southern United States as its name suggests, populations of *Bombus pensylvanicus* have decreased significantly in recent years. They generally nests in fields of long grass, but may sometimes nest underground. The species utilizes bundles of hay or long grass to create sheltered nests above ground. Some nest in established crevices and burrows, such as old bird nests, rodent burrows, or in cinder blocks. This species has even been noted to nest in human made objects, like buckets or barns. (Photo by D. Halter)



Southern Plains Bumble Bee

Bombus fraternus is a species of bumblebee known commonly as the **Southern Plains bumblebee**. It is native to the United States east of the Rocky Mountains. It is most often encountered in the Southeast, in areas with sandy soil. They range from New Jersey to Florida, North Dakota, South Dakota, Nebraska, Colorado, and New Mexico. It is uncommon today, having faced declines in population; its estimated abundance is less than 15% of historical numbers.



Sonoran Bumble Bee

Bombus sonorus, the **sonoran bumble bee**, is a species of bumble bee in the family Apidae. It is found in Central America and North America.



Red Harvester Ant

Pogonomyrmex barbatus is a species of red harvester ant from the genus Pogonomyrmex. These large ants prefer arid chaparral habitats and are native to the southwest United States. Nests are made underground (up to 2.5 meters deep) in exposed areas. Their diets consist primarily of seeds, and they consequently participate in myrmecochory, an ant-plant interaction through which the ants gain nutrients and the plants benefit through seed dispersal. Red harvester ants are often

mistaken for fire ants, but are not closely related to any fire ant species, native or introduced. Red harvester ant nests are characterized by a lack of plant growth and small pebbles surrounding the entrance to the tunnel, which usually descends at a pronounced angle. Hulls of seeds may be found scattered around the nest. In grassland areas, such as ranches, the lack of plant life makes red harvester ant colonies very easy to spot. Harvester ants defend their colonies vigorously against real or perceived attacks, whether by large or small animals. They

may bite ferociously and their bites are venomous and painful. The effect spreads through the lymphatic system, sometimes causing dangerous reactions, especially in people sensitive or allergic to their venom. Over the years, their numbers have been declining, and this has often been attributed to competition for food with the invasive red imported fire ant and the Argentine ant, along with pesticide use by homeowners and ranchers under the mistaken idea that they are dangerous. Their decline has affected many native species, especially those for which the red harvester ant is a chief source of food, such as the Texas Horned Lizard (aka Horny Toad).



Red Imported Fire Ant

The red imported fire ant is native to central South America. It is also established in the U.S. and Australia. In the U.S., RIFA was first introduced from Brazil into either Mobile, Alabama, or Pensacola, Florida, between 1933 and 1945. However, the red imported fire ant infests Puerto Rico, and all or part of many southern and western states from Maryland to southern California. Mounds are built of soil and are seldom larger than 18 cm in diameter. On warm days,

the colony moves their eggs just below the surface. At this time pouring boiling water on the mound will kill many eggs and adults. When a mound is disturbed, ants emerge aggressively to bite and sting the intruder. A white pustule usually appears the next day at the site of the sting. The lifespan of red imported fire ant workers depends on their size. Minor workers may live 30 to 60 days, media workers 60 to 90 days, major workers 90 to 180 days, and queens may live two to six years. Mating flights are the primary means of colony propagation. Secondarily, budding can occur in which a portion of a colony becomes an autonomous unit. Alates (unmated winged females) are often attracted to swimming pools where homeowners can find thousands of winged ants trapped on the water's surface. The sting of the red imported fire ant possesses venom of an alkaloid nature, which exhibits potent necrotoxic activity. Approximately 95% of the venom is composed of these alkaloids, which are responsible for both the pain and white pustule that appears approximately one day after the sting occurs. The remainder of the venom contains an aqueous solution of proteins, peptides, and other small molecules that produce the allergic reaction in hypersensitive individuals. Worker fire ants will attach to the skin using their mandibles and will subsequently lower the tip of the abdomen to inject the stinger into the victim. Thus, fire ants both bite and sting, but only the sting is responsible for the pain and pustule. (*Photo by David Almquist, University of Florida*)

American Snout



The **American snout** or **common snout** butterfly (*Libytheana carinenta*) is a member of the Libytheinae subfamily, in the brush-footed butterfly family Nymphalidae. This species is found in both North and South America. The larval host plants are Hackberry tree species on which the eggs are laid singly. Adults over winter in the south and migrate north each spring. Massive migrations of

this species often attract attention in the Texas and Mexican newspapers.



Papilio polyxenes, the **(eastern) black swallowtail**, **American swallowtail** or **parsnip swallowtail**, is a butterfly found throughout much of North America. It is the state butterfly of Oklahoma and New Jersey. The species is named after the figure in Greek mythology, Polyxena, who was the youngest daughter of King Priam of Troy. Its caterpillar is called the **parsley worm** because the caterpillar feeds on parsley. Males congregate at lek sites, where females come to mate.



Females are therefore able to choose males based on these sites and males are the only resource the females find at these sites. This caterpillar absorbs toxins from the host plants, and therefore tastes bad to bird predators. The black swallowtail caterpillar has an orange "forked gland", called the osmeterium. When in danger, the osmeterium, which looks like a snake's tongue, everts and releases a foul smell to repel predators. Some of the host plants used are Dill, Queen Anne's Lace, Italian Parsley, Mock Bishopweed, Water Cowbane, Fennel, Celery and other members of the carrot family.

Eastern Tiger Swallowtail



Papilio glaucus is a species of swallowtail butterfly native to eastern North America. It is one of the most familiar butterflies in the eastern United States, where it is common in many different habitats.



It flies from spring to fall, during which it produces two to three broods. *P. glaucus* has a wingspan measuring 3.1" to 5.5". The male is yellow with four black "tiger stripes" on each forewing. Females may be either yellow or black, making them dimorphic. The yellow morph is similar to the male, but with a conspicuous band of blue spots along the hindwing, while the dark morph is almost completely black. The green eggs are laid singly on plants of the families Magnoliaceae and Rosaceae, including willow, cottonwood, ash, and cherry. Young caterpillars are brown and white; older ones are green with two black, yellow, and blue eyespots on the thorax. The caterpillar will turn brown prior to pupating. It will reach a length of 2.2". The chrysalis varies from a whitish color to dark brown. Hibernation occurs in this stage in locations with cold winter months. The Eastern Tiger Swallowtail is the state butterfly of Alabama (as well as their state mascot), as well as Delaware, North and South Carolina, and Georgia. It is the state insect of Virginia. (Photo of male (no blue on hindwing) by L. Seman).



plants they feed on in order to defend themselves from predators by being poisonous when consumed. This makes the adults and caterpillars poisonous. Some species of *Aristolochia* are toxic to the larvae, typically tropical varieties such as Giant Dutchman's Pipevine. The eggs are brick red, laid singly or in groups up to twenty. (Butterfly photo by D. Halter)

[Pipevine Swallowtail](#)

Battus philenor, the **pipevine swallowtail** or **blue swallowtail**, is a swallowtail butterfly found in North America and Central America. This butterfly is black with iridescent-blue hindwings. They are found in many different habitats, but are most commonly found in forests. The adults feed on the nectar of a variety of flowers. Caterpillars are often black or red, and feed on compatible plants of the genus *Aristolochia* (pipevines). They are known for sequestering acids from the



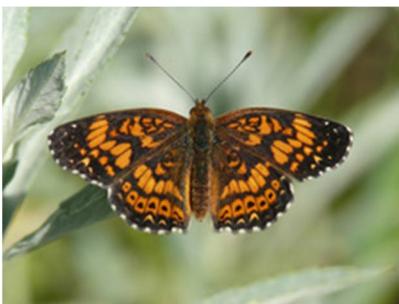
[Phaon Crescent](#)

Phyciodes phaon (the **Phaon crescent** or **mat plant crescent**) is a species of butterfly endemic to northern Florida. Host plants are frogfruit, matt grass, and other members of the verbena family. The Phaon crescent is distinguished from other *Phyciodes* species by having a creamy yellow band evident across both upper side and underside of the forewing. (photo by D. Halter)



Pearl Crescent

The **pearl crescent** (*Phyciodes tharos*) is found in all parts of the United States except the west coast, and throughout Mexico and parts of southern Canada. Its habitat is open areas such as pastures, road edges, vacant lots, fields, open pine woods. Its pattern is quite variable. Males usually have black antenna knobs. Its upperside is orange with black borders. Plants of the aster family are their larval host food.



Gorgone Checkerspot

Chlosyne gorgone is a species of Nymphalinae butterfly that occurs in North America. Upperside is orange with black markings; hindwing with submarginal row of solid black spots. Underside of hindwing has a zigzag pattern of brown and white bands and a median band of white chevrons. Host food consists of members of the Asteracea family, including sunflowers.



Hackberry Emperor

Asterope celtis is a North American butterfly that belongs to the family of brushfooted butterflies, Nymphalidae. It gets its name from the hackberry tree (*Celtis occidentalis*) and others in the *Celtis* genus, upon which it lays its eggs. Various hackberries (Celtis species) and sugarberry (*Celtis laevigata*) are the only host plant for *A. celtis*. Adults do not feed on nectar. They prefer sap, rotting fruit, dung, and carrion. They will take moisture at wet spots along roads and streams. (photos by D. Halter)



Tawny Emperor

Asterope clyton, the **tawny emperor**, is a species of brush-footed butterfly. It is native to North America, especially the eastern half from Canada to northern Mexico. The tawny



emperor should not be mistaken for a very similar *Asterocampa* butterfly, the hackberry emperor, which can be distinguished by the white spots near the front of its wings. This butterfly may be seen flying near houses, gravel driveways, near water, muddy places, gardens, and woodlands. Its only host plant is hackberry trees. The adult feeds on carrion, plant sap, and dung, and rarely land on flowers. (butterfly photos by D. Halter)



Goatweed Leafwing

Anaea andria, known generally as the **goatweed leafwing** or **goatweed butterfly**, is a species of leafwing in the family of butterflies known as Nymphalidae. It is found in North America. Goatweed Leafwing males are brick red above. The forewing has a pointed hook. The hindwing is tailed. Both wings below are grayish or brownish. Females are duller

above and have a yellowish post median band. The hook on the forewing is not as pronounced in the summer form. This species

usually perches with wings closed and thus can be difficult to detect. With their wings closed, they resemble dead leaves. If startled, they may drop to the ground and remain motionless, hiding themselves amongst dead leaves on the ground. Adults feed on dung, carrion, rotting fruit and sap. Larval food plants of this species are plants in the genus *Croton* in the spurge family (*Euphorbiaceae*). Plants in this genus are often called goatweeds. Eggs are laid on the underside of the goatweed leaves. Caterpillars live in leaf shelters formed by rolling and tying leaves together lengthwise. (Right photo by D. Halter, caterpillar by M. J. Krotzner)



Bordered Patch

Chlosyne lacinia, the **bordered patch** or **sunflower patch**, is a North and South American butterfly in the family Nymphalidae. Its caterpillars feed on members of the Asteracaea family, such as

Common Sunflower and Cowpen Daisy.



[Painted Lady](#)



Vanessa cardui is a well-known colorful butterfly, known as the **painted lady**. It has been found on all continents except Australia and Antarctica. It is the most widely distributed butterfly in the world.

This butterfly has a strange habit of



flying in a sort of screw pattern. In Europe, it makes a longer migration than the Monarch does in the United States. Its larvae feed on thistles, hollyhock, and legumes. (*Photos by D. Halter*)



[American Lady](#)

The **American Painted Lady** or **American Lady** (*Vanessa virginiensis*) is a butterfly found throughout North America, mainly in the south and eastern states. The adults hibernate but it is not known if they survive extremely cold weather. Larvae feed on the sunflower family.

(*Photos by D. Halter*)



[Red Admiral](#)

Vanessa atalanta, the **red admiral** is a well-characterized, medium-sized butterfly with black wings, red bands, and white spots. It has a wingspan of about 2 inches. The red admiral is widely distributed across temperate regions of North Africa, the Americas, Europe, and the Caribbean. It resides in warmer areas, but migrates north in spring and sometimes again in autumn. Typically found in moist woodlands, the red admiral caterpillar's primary host plant is the stinging nettle (*Urtica dioica*); it can also be found on the false nettle (*Boehmeria cylindrica*). The adult butterfly drinks from flowering plants like Buddleia and overripe fruit. Red

admirals are territorial; females will only mate with males that hold territory. Males with superior flight abilities are more likely to successfully court females. It is known as an unusually calm butterfly, often allowing observation at a very close distance before flying away. (*Butterfly photo by D. Halter*)





Question Mark

The **Question Mark** (*Polygonia interrogationis*) is a North American nymphalid butterfly. They live in wooded areas and city parks, or generally in areas which feature trees and free spaces. The adult butterfly has a wingspan of 4.5–7.6 cm (1.8–3.0 in). Its flight period is from May to September. "The silver mark on the underside of the hindwing is broken into two parts, a curved line and a dot, creating a ?-shaped mark that gives the species its common name. Larva feed on hackberry, elm, hops and nettles. Some eastern populations migrate. Many adults will overwinter by hibernating. (Photo by D. Halter)



Common Buckeye

Junonia coenia, the Common Buckeye, is a striking butterfly, with large eye spots. The larvae feed on members of the snapdragon family, toadflax and plantains. It is found across most of North America. It likes to sit on patches of bare ground. The males can be territorial, darting after anything that passes by. (Photos by D. Halter)



Common Wood-nymph

The **common wood-nymph** (*Cercyonis pegala*) is a North American butterfly in the family Nymphalidae. It is also known as the wood-nymph, grayling, blue-eyed grayling, and the goggle eye. The Common Wood-Nymph has scalloped edges on the hind wings. From both above (the dorsal surface) and below (the ventral surface), the fore wing has two prominent eye spots. Each eye spot has a white pupil. The hind wing has up to three small eye spots above and up to six below, although the hind wing may lack these eye spots entirely. Females frequently lack the smaller eye spots on the hind wing.

Although it looks similar to the Common Buckeye, they are from different families. The Wood-nymph is geographically variable. The caterpillars feed on grasses. (Photo by L. Seman)



Variegated Fritillary

Euptoieta claudia, the **variegated fritillary**, is a North and South American butterfly in the family Nymphalidae. Even though the variegated fritillary has some very different characteristics from the other fritillaries, it is still closely related to them. They are nomadic and the larvae use a wide

range of host plants, including passion vines and violets. (Photo by D. Halter)



Gulf Fritillary

The **Gulf fritillary or passion butterfly** (*Agraulis vanillae*) is a bright orange butterfly of the family Nymphalidae and subfamily Heliconiinae. The Heliconiinae are "longwing butterflies", which have long, narrow wings compared to other butterflies. Its underwings show elongated, iridescent silver spots. The topside of its wings are bright orange. The larvae are found frequently on passion vine. It is most commonly found in the southern areas of the United States, specifically in many regions of Florida and Texas. Gulf fritillaries have a chemical defense mechanism in which they release odorous chemicals in response to predator sightings. As a result, common predators learn to avoid this species. Pheromones play a critical role in male-female courtship behaviors, with male gulf fritillaries emitting sex pheromones that contribute to mate choice in females. The larva feed on passion vine. (Butterfly photos by D. Halter)



Queen Butterfly

The **Queen Butterfly** (*Danaus gilippus*) is a North and South American butterfly with a wingspan of 2.8–3.5 inches. It is orange or brown with black wing borders and small white forewing spots on its dorsal wing surface, and reddish ventral wing surface fairly similar to the dorsal surface. The ventral hindwings have black veins and small white spots in a black border. The male has a black androconial scent patch on its hind wings. Unpalatability to avian predators is a feature of the butterfly; however, its level is highly variable. Unpalatability is correlated with the level of cardenolides obtained via the larval diet, but other compounds like alkaloids also play a part in promoting distastefulness. The larvae feed on Milkweed species, dogbanes, and Butterfly Weed. (Photos by D. Halter)





Monarch

The **monarch butterfly** or simply **monarch** (*Danaus plexippus*) is known by other common names, depending on region include **milkweed**, **common tiger**, **wanderer**, and **black veined brown**. It may be the most familiar North American butterfly, and is considered an iconic pollinator species. Males have a black androconial scent patch on its

hind wings. Its wings feature an easily recognizable black, orange, and white pattern, with a wingspan of 3 1/2". Long lived, this butterfly overwinters wintering in a very localized forest in Mexico. The overwintering butterflies travel northward in the spring, laying eggs and then dying. The next generation completes the next leg of the journey northward, also laying eggs and dying. The fourth

generation of Monarchs are stouter and have stronger wings, to sustain them on their long migration. They retrace the route of their ancestors, returning southward to overwinter in the same Mexican forest. There is a fifth generation that creates as the returning Monarchs lay eggs of their own. This fifth generation also migrates southward to overwinter and start the migration northward again in spring. During migration, large numbers of migrating Monarchs will gather together at night. The Western Monarch winters in California, but is decreasing rapidly in numbers. Some Monarchs also overwinter in the Houston, TX area. (Photos by D. Halter)



Gray Hairstreak

The **gray hairstreak** (*Strymon melinus*) is one of the most common hairstreaks in North America, ranging over nearly the entire continent. It occurs also throughout Central America and in northern South America. Larvae feed on flowers and fruits from an almost endless variety of plants, but most often from pea (Fabaceae) and mallow (Malvaceae) families including beans (*Phaseolus*), clovers (*Trifolium*), cotton (*Gossypium*), and mallow (*Malva*). They rarely perch with their wings open. (Photo by D. Halter)



Red-banded Hairstreak

The Red-banded Hairstreak, *Calyycopis cecrops*, is one of the most common hairstreaks in the east, but is on the western edge of its range in our area. The caterpillars feed on fallen leaves of wax myrtle (*Myrica cerifera*), dwarf sumac (*Rhus copallina*), staghorn sumac (*R. typhina*), and several oaks.



Eggs are laid on the undersides of dead leaves on the ground beneath the host plants. As with the other hairstreak butterflies, perching adults move their hind wings up and down (Sourakov 2017). The tails on the hind wings with their associated eyespots resemble a head. The movement of the tails is believed to attract a potential predator's attention to that part of the wings which then is torn away allowing the butterfly to escape. This "false head" defense has been documented to be effective against the attacks of jumping spiders. (Photo by D. Halter)



[Eastern Tailed-Blue](#)

The **eastern tailed-blue** or **eastern tailed blue** (*Cupido comyntas*), also known as *Everes comyntas*, is a common butterfly of eastern North America. It is a medium-sized butterfly that is distinguished from other blues in its range by the small thin tail. Although most Lycaenids do not perch with open wings, Eastern Tailed-Blues sometimes bask with their wings at a 45 angle. This butterfly has a low flight and a short proboscis, thus is found at flowers close to the ground which are open or short-tubed. These include members of the pea

family including yellow sweet clover (*Melilotus officinalis*), alfalfa (*Medicago sativa*), various species of vetch (*Vicia*), clover (*Trifolium*), wild pea (*Lathyrus*), and bush clover (*Lespedeza*), white sweet clover, shepherd's needle, wild strawberry, winter cress, cinquefoils, asters, and others. The caterpillar hibernates, pupating the following spring. (Photo by D. Halter)



[Reakirt's Blue](#)

Hemiargus Isola is resident from southern California, the Southwest, and Texas through Mexico and Central America to Costa Rica. Summer migrant north and east through the Mississippi River states to Wisconsin and Ohio.. Caterpillars eat flowers and seedpods, sometimes leaves, and are tended by ants which presumably protect the caterpillars in return for their sugary secretions.

Host plants are mostly in the pea family (Fabaceae), including yellow sweet clover (*Melilotus officinalis*), rattleweed (*Astragalus*), mesquite (*Prosopis*), indigo bush (*Dalea*), mimosa (*Albizia*), and indigo (*Indigofera*) species. (Photos by D. Halter)



[Little Yellow](#)

The **Little Yellow**, **Little Sulphur**, or **Little Sulfur** (*Eurema lisa*) is a species of Coliadinae that occurs from Costa Rica north to South Texas and the Deep South. It seasonally colonizes most of eastern United States and west to eastern South Dakota, central Nebraska, and eastern New Mexico. Often found in dry, open areas including roadsides, sandy fields, abandoned fields, along railroad tracks, and occasionally open woods. Larva feed

on Partridge pea (*Cassia fasciculata*) and wild sensitive plant (*C. nititans*) in the pea family (Fabaceae). (Photo by D. Halter)



Cloudless Sulphur

Phoebeis sennae, the **cloudless sulphur** or the **cloudless giant sulphur**, is a mid-sized lemon-yellow butterfly in the family Pieridae found in the New World. There are several similar species, such as the yellow angled-sulphur (*Anteos maerula*), which has angled wings, statira sulphur (*Aphrissa statira*), and other sulphurs, which are much smaller. Adults feed on the nectar from many different flowers with long tubes including cordia, bougainvillea, cardinal flower, hibiscus, Turk's Cap, lantana, and wild morning glory. Caterpillars feed on members

of the pea family. (Photo by D. Halter)



Dainty Sulphur

The **Dainty Sulphur** or **Dwarf Yellow** (*Nathalis iole*) is a North American butterfly in the family Pieridae. It is small, with elongated forewings. The upperside of the wing is yellow with black markings. Larvae feed on low-growing plants in the aster family (Asteraceae) especially shepherd's needle (*Bidens pilosa*), sneezeweed (*Helenium*), fetid marigold (*Dyssodia*), and cultivated marigold (*Tagetes*). Adults tend to rest on the ground more often than on plants. (Photo by D. Halter)



Orange Sulphur

Colias eurytheme, the **orange sulphur**, also known as the **alfalfa butterfly** and in its larval stage as the **alfalfa caterpillar**, is a butterfly of the family Pieridae, where it belongs to the lowland group of "clouded yellows and sulphurs" subfamily Coliadinae. It is found

throughout North America from southern Canada to Mexico, but is absent from the central and southeastern United States. Host plants are in the pea family (Fabaceae), including alfalfa (*Medicago sativa*), white clover (*Trifolium repens*), and white sweet clover (*Melilotus alba*). (Left photo by D. Halter)





Sleepy Orange

Eurema nicippe, the **sleepy orange**, is a North American butterfly in the family Pieridae. Upperside of wings are orange in both sexes. In the summer form, the underside of the hindwing is orange-yellow, in the winter form, underside is brick red, brown, or tan, as in the right photo. Caterpillars feed on members of the senna family, such as Partridge Pea and Wild Sensitive Plant. (Photos by D. Halter)



Checkered White

Pontia protodice, the **checkered white** or **southern cabbage butterfly**, is a common North American butterfly in the family Pieridae. Males are whiter than females, who are more heavily patterned. The green larva is a type of cabbage worm. Their host plants are native and exotic mustards.



Clouded Skipper

Lerema accius, the **clouded skipper**, is a butterfly of the Hesperiidae family. It is found in the United States from Georgia west to Texas, south to Florida, and south through Mexico and Central America to Venezuela and Colombia. Larval food includes various grasses, including St. Augustine grass (*Stenotaphrum secundatum*), wooly beard grass (*Erianthus alopecuroides*), and *Echinochloa povicianum*.



Eufala Skipper

Lerodea eufala, the **Eufala skipper** or **rice leaffolder**, is a butterfly of the Hesperiidae family. It is found from the coast of Georgia, south through Florida and west across the southern United States to southern California, south through Mexico and Central America to Patagonia. In the summer, it expands its range north to central California, North Dakota, southern Wisconsin, northern Michigan and Washington, D.C.

Caterpillars eat various grasses, including Johnson grass (*Sorghum halepense*), Bermuda grass (*Cynodon dactylon*), and sugarcane (*Saccharum officinarum*) and make shelters of rolled or tied leaves. (Photo by D. Halter)



Fiery Skipper

The **Fiery Skipper** (*Hylephila phyleus*) is a butterfly of the family Hesperiidae and is approximately 1 inch (2.5 cm) long. The Antennae are very short. The males are orange or

yellow with black spots while the females are dark brown with orange or yellow spots. Amount of spotting is variable. The caterpillars are greenish pink with a black head. The caterpillars are often considered pests and can feed on Bermuda grass, creeping bentgrass, and St. Augustine grass. Caterpillars roll leaves and tie them to make shelters which lie horizontally in the sod. (Left photo by D. Halter)



Sachem

Atalopedes campestris (called the **sachem** in the United States) is a small skipper butterfly. It is just over 1 inch long and has orange-and-brown adults. Females are slightly larger and have paler markings on their wings compared to males. Caterpillars feed on leaves and live at the base of grasses in shelters of rolled or tied leaves. Host plants are grasses, including Bermuda grass (*Cynodon dactylon*), crabgrass (*Digitaria*), St. Augustine grass (*Stenotaphrum secundatum*),

and goosegrass (*Eleusine*). (Photo by D. Halter)



Common Checkered Skipper

Pyrgus communis, the **common checkered-skipper**, is a species of butterfly in the family *Hesperiidae* and is the most frequently seen *Pyrginae* specie in the US. Its caterpillars feed on members of the mallow family.



Males patrol for females in a well-defined territory for the majority of the day. They fly erratically and close to the ground. Occasionally, they perch on low vegetation or on the ground. When they nectar, puddle or rest, they usually hold their wings fully spread. (Photos by D. Halter)



Hayhurst's Scallopwing

Staphylus hayhurstii, the **Hayhurst's scallopwing**, is a butterfly of the family Hesperiidae. It is found in the United States from eastern Nebraska east across the southern Midwest to southern Pennsylvania and south to Florida, the Gulf states and central Texas. A dark butterfly with scalloped wing

margins. Fringe around the edges, when visible, is checkered black and tan. The upperside of the wing is dark brown with 2 darker bands across each wing; forewing has a few tiny translucent dots. Caterpillars rest in rolled leaves during the day and eat leaves at night. Known host plants are Lambsquarters (*Chenopodium*) in the goosefoot family (*Chenopodiaceae*), and occasionally chaff flower (*Alternanthera*) in the pigweed family (*Amaranthaceae*). The butterfly rest on leaves with wings held open and will hide in bushes when disturbed. (Photo by D. Halter)

Black Witch



The erebid moth *Ascalapha odorata*, commonly known as the **black witch moth**, is easily recognized by its large size (wingspan up to 7") and pointed forewing, which is blackish to brownish with typical noctuid pattern of lines and spots. This species is dimorphic (males and females patterned differently).

Note the large oval patch at outer margin, containing 2 rounded spots. Pinkish white bands beyond post medial lines on the forewing and hindwing in females are absent in males. This nocturnal moth can be found from Brazil through the southern United States. It is the largest noctuid found in the continental United States. In the folklore of many cultures in Latin America and the Caribbean, it is associated with death or misfortune, being called the “moth of death”. In flight, it can be mistaken for a bat. (Photo by D. Halter)



Polyphemus Moth

Antheraea polyphemus, the **Polyphemus moth**, is a North American member of the family *Saturniidae*, the giant silk moths. It is a tan-colored moth, with an average wingpan of 6 inches. The most notable feature of the moth is its large, purplish eyespots on its two hindwings. The eyespots give it its name – from the Greek myth of the cyclops Polyphemus. The species is widespread in continental North America. The caterpillar can eat 86,000 times its weight at emergence in a little less than two months.

Differentiating between sexes of this species is very easy. The most obvious difference is the plumose antennae. Males have very bushy antennae while females have moderately less bushy antennae. The male's antennae are used to detect pheromones released by unmated females. Another difference is that the females are slightly larger in the abdomen due to carrying eggs. A surprising amount of variation occurs within this species. Color patterns can range from a reddish cinnamon to a dark brown, but are almost always a shade of brown.

Tersa Sphinx Moth



Xylophanes tersa, the **tersa sphinx**, is a moth of the family *Sphingidae*. The upperside of the forewing is pale brown with lavender gray at the base and has dark brown lines. The upperside of the hindwing is dark brown with a band of whitish, wedge-shaped marks. Adults are on wing from May to October in the north and February to November farther south in the US, and they fly year round in the tropics. There is one generation in the north and several generations farther



south, in Florida and Louisiana, for example. The adults feed on the nectar of various flowers. The host plants are Catalpas and pentas. The caterpillars can be green or brown, with large eye spots behind the head getting smaller down the body



Amorpha juglandis, the **walnut sphinx**, is the only species in the monotypic moth genus *Amorpha*, which is in the family *Sphingidae*. The pattern on the wings can be highly variable. Wings of an individual may be all one color or may have several colors, ranging from pale to dark brown, and may have a white or pink tinge. Patterns range from faint to pronounced. They are 1 to 3 inches wide. Caterpillars make a squeaking sound when disturbed. The adults do not feed.

Host plants are Walnut, butternut, hickory, alder, beech, hazelnut, and hop-hornbeam. (Photo by D. Halter)



in patterning and depth of color, all with the distinctive "horn" on its rump. (Photo by D. Halter)

Banded Sphinx

Eumorpha fasciatus, the **banded sphinx**, is a moth of the family *Sphingidae*. It is found from South America through the southern United States. The upperside is dark pinkish brown. Forewing has a lighter brown band along the costa, and sharp pinkish white bands and streaks. Hindwing has a pink patch on the inner margin and pink along the outer margin. It has a wingspan of about 3 inches. Adults begin feeding at dark. Caterpillars pupate in shallow chambers in the soil. Host plants are Primrose-willow and other plants in the evening primrose family. The larvae are highly variable



Manduca quinquemaculata, the **five-spotted hawkmoth**, is a large brown and gray hawk moth of the family *Sphingidae*. Abdomen usually has 5 but sometimes 6 pairs of yellow bands. Forewing is blurry brown and gray. Hindwing is banded with brown and white and has 2 well-separated median zigzag bands. Forewing fringes are

Five-spotted Hawk Moth

grayish, not distinctly spotted with white. Wingspan is 3-5 inches. The caterpillar, often referred to as the tomato hornworm, can be a major pest in gardens. They get their name from a dark projection on their posterior end and their use of tomatoes as host plants. The caterpillars are similar to other sphinx moths that can also be found on tomato plants. Their host plants are Potato, tobacco, tomato, and other plants in the nightshade family (Solanaceae). (Photo by L. Clepper)



Lunate Zale Moth

Zale lunata, the **Lunate Zale**, is a moth of the family Erebidae. The species is found throughout the east and west of North America. The moth flies from March to September depending on the location. The larvae feed on various deciduous trees, such as maples, oaks, willows, peaches,

plums and apricots. They prefer to sit with wings flat and have a “furry” patch behind the head.

The wingspan is just under two inches. (Photo by L. Seman)



Ilia Underwing

Catocala ilia, the **Ilia underwing**, beloved underwing or wife underwing, is a moth of the family Erebidae. It can be found in the eastern part of the United States as well as southern Canada. A spot on its forewing with a distinct white circle which encompasses it distinguishes this moth from others in the same family. Otherwise, the forewing can be extremely variable. The underwing, that it is named for, can range in color from light orange to a deep red. The moths flies from June to September depending

on the location. The larvae feed on oak, including black, burr, red, and white oaks. (Photo by L. Seman)



Chalcedony Midget

Elaphria chalcedonia, the **chalcedony midget moth**, is a moth of the family Noctuidae. It is found in North America, where it has been recorded from the eastern United States, from Maine to Florida, west to Texas and north to Wisconsin. The forewings consist of a mixture of white, dark grey/blackish and dull yellow or orangish. The basal and upper median areas are dull yellowish to orangish and there is

a white edge along the postmedial line, as well as dark grey to blackish shading inside the antemedial line, in the lower median area and in subterminal area. The hindwings are white with dark grey shading distally or uniform brownish-grey. Host plants are in the snapdragon family, such as Penstemon. (Photo by D. Halter)



Black-shaded Platynota Moth

Platynota flavedana, the **black-shaded platynota moth**, is a species of moth of the family Tortricidae. It is found in the United States from Minnesota to Maine, south to North Carolina and west to Arizona. Adults are sexually dimorphic. The forewings of the males are dark purplish brown basally and yellowish to orangish brown apically. Females have brown to orangish brown forewings with dark brown to purplish-brown markings. The hindwings of both sexes are brown to orangish brown. Adults are on wing from May to June and again from July to September. There are usually two generations per year, but a partial third generation may occur in the southern part of the range. The larvae feed

on various plants and have been recorded on maple, bonesets, sunflowers, and other plants. They feed from within a shelter constructed of tied or folded leaves. Feeding may cause damage to blossoms or fruit. Caterpillars have a green to pale green body and brownish-yellow head. The species overwinters as a mid-instar larva. Pupation takes place in webbed leaves.



Eggplant Leafroller Moth

Lineodes integra, the **eggplant leafroller moth** or **nightshade leafftier**, is a moth of the family Crambidae. Its larval food plants are in the "tomato family, such as eggplants, ground-cherry, peppers, tropical soda apple, and tomatos. The moth has a short lifespan and even when it comes to light it is easy to miss with its narrow wings spanning 3/4 inch. It



has a distinctive habit of resting with its abdomen curved up above its thorax but our moth didn't cooperate. (Photos by D. Halter).



Chrysellus Flower Moth

Schinia chrysella is a moth of the family Noctuidae. It is found on Great Plains. The caterpillars feed on broomweeds. (Photo by Wikimedia Commons)



Green Cloverworm Moth

The **Green Cloverworm** or **Black Snout** (*Hypena scabra*) is a moth of the *Erebidae* family. It is found from Canada south to Florida and Texas. It has a long snout and thin antennae. Adults are nocturnal and come to lights at night. The green cloverworm eats low-growing plants like alfalfa, beans, ragweed, as well as strawberry and raspberry leaves. (Photo by D. Halter)



White-dotted Prominent Moth

Nadata gibbosa is a moth of the family *Notodontidae*. It is also known as the **white-dotted prominent, rough prominent**, and the **tawny prominent**. This common moth is found across North America from the northern boreal forests to as far south as Florida. It is most common in deciduous forests at some elevation. It is nocturnal, but attracted to lights. The moths start to fly soon after dusk and

return to resting places some time before dawn breaks.



Indomitable Graphic Moth

The **Indomitable Graphic Moth** or **Indomitable Melipotis** (*Melipotis indomita*) is a species of moth in the *Erebidae* family. The species is found from the West Indies to Mexico and Brazil and most of the United States. Its caterpillars feed on mesquite. (Photo by D. Halter)



Black-and-yellow Lichen Moth

Lycomorpha pholus, the **black-and-yellow lichen moth**, is a moth in the family *Erebidae*. It is found in North America from Nova Scotia to North Carolina, west to South Dakota and Texas. The habitat consists of short-grass prairie. A day-flier, often seen on flowers such as goldenrod. Its caterpillars feed on lichen. (Photo by D. Halter)



Thin-banded Lichen Moth

Cisthene tenuifascia, the **thin-banded lichen moth** or **three-banded lichen moth**, is a moth of the family *Erebidae*. It is found Mexico and from Arizona to Florida, North Caroline and

Oklahoma. Strays can be found further north. Adults have a yellow-orange strip along the inner margin of the forewing. They are on wing from March to October. The larvae feed on lichens and algae. (Photo by D. Halter)



Fall Armyworm Moth

The **fall armyworm** (*Spodoptera frugiperda*) is a species in the order of *Lepidoptera* and is the larval life stage of a fall armyworm moth. It is regarded as a pest and can damage and destroy a wide variety of crops, causing large economic damage. Its scientific name derives from *frugiperda*, which is Latin for *lost fruit*, named because of the species' ability to destroy crops. Because of its propensity for destruction, the fall armyworm's habits and possibilities for crop protection have been studied in depth. It is also a notable case for studying sympatric speciation, as it appears to be diverging into two species currently. Another remarkable trait of the larva is that they practice cannibalism.



Wilson's Wood-nymph Moth

Wilson's Wood-nymph, *Xerociris wilsonii*, is a bird dropping mimic. The moth is about one inch long. The large, dark caterpillars feed on members of the Vitaceae plant family. The members of this plant family are most often woody vines sporting tendrils used for climbing and attaching to structure, such as

grapes, Virginia Creeper and Ivy Trebine (*Cissus incisa*). The Wilson's Wood-nymph Moth tends to stay put during the day, not easily disturbed. (Caterpillar photo by D. Halter)



Corn Earworm Moth

Helicoverpa zea, commonly known as the **corn earworm**, is a species (formerly in the genus *Heliothis*) in the family Noctuidae. The larva of the moth *Helicoverpa zea* is a major agricultural pest. Since it is polyphagous (feeds on many different plants) during the larval stage, the species has been given many different common names, including the **cotton bollworm** and the **tomato fruitworm**. It also consumes a wide variety of other crops. (Photo by D. Halter).



Dot-lined Angle

Macaria abydata, commonly known as the **dot-lined angle**, is a moth of the family Geometridae. It is native from northern Argentina to the Caribbean and southern United States (southern states from Arizona to Florida, regularly wandering north to Colorado, Kentucky and other more northern states). It has been introduced to the Pacific and has spread rapidly since.

The first introduction occurred in Hawaii in 1970 (recorded from all the main islands in 1984). Larvae feed on *Sweet Acacia*, *Cassia*, *Sesbania*, *Mexican Palo Verde*, and soybean.



Chickweed Geometer Moth

Haematopis grataria, the **chickweed geometer**, is a species of small moth of the family Geometridae. It is found throughout the United States. Geometer moth caterpillars are called inchworms - they are missing several sets of prolegs in their midsection and that causes them to "inch" along. Because their larvae eat the leaves of chickweed, clover, smartweed and

other low plants, and because lawns may be hotbeds of chickweed and clover, this moth is often found in manicured situations. (Photo by D. Halter)



Common Tan Wave

The **Common Tan Wave Moth** (*Pleuroprucha insulsaria*) is a species of moth of the Geometridae family. It is found in eastern North America, from Nova Scotia to Florida, west to Texas and Colorado. Caterpillars feed on bittersweet, bedstraw, corn, goldenrod, oak, willow and many other plants. (Photo by D. Halter)



Lucerne Moth

Nomophila nearctica, the **lucerne moth**, **clover nomophila**, **false webworm**, **celery stalkworm** or **American celery webworm**, is a moth of the Crambidae family. It is known from southern Canada and all of the United States, south to Mexico and the Neotropics. The larvae feed on celery, grasses, lucerne, alfalfa, knotweed, sweet clovers, and various other low-growing herbaceous plants.



Hawaiian Beet Webworm Moth

Spoladea recurvalis, sometimes known by the common name **Beet Webworm Moth** or **Hawaiian Beet Webworm**, is a species of moth of the family Crambidae. It is found worldwide, but mainly in the tropics. The larvae feed on spinach, beet, cotton, maize and soybean. They feed on the underside of the leaves protected by a slight web. The larvae are green and resemble the ribs of the leaf somewhat. Similar to the Spotted Beet Webworm Moth. (Photo by D. Halter)



Spotted Beet Webworm Moth

Hymenia perspectalis, the **Spotted Beet Webworm Moth**, is a species of moth of the Crambidae family. It is found in central and eastern North America, as well as in other parts of the world. The larvae feed on a wide range of plants, including beet, chard, potatoes, amaranth species, and various greenhouse plants. It is very similar to the Hawaiian Beet Webworm Moth.



Scraped Pilocrocis Moth

Pilocrocis ramentalis, the **scraped pilocrocis moth**, is a moth in the Crambidae family. It was described by Lederer in 1863. It is found in central and eastern North America. The habitat consists of open woods, clearings and damp areas. (Photo by D. Halter)



Wedgling Moth

Galgula partita, The **Wedgling Moth**, is a moth of the family Noctuidae. It is found from most of North America. Adult males have reddish-brown to grayish forewings, while these are shiny dark brownish-maroon to blackish in females. The hindwings are grayish-brown, but darker in females than in males. They are on wing from March to November in the southern part of the range and from May to September in the north. There are several generations per year. The larvae feed on Wood Sorrel species. (Adult photos by D. Halter)





Vagabond Sod Webworm Moth

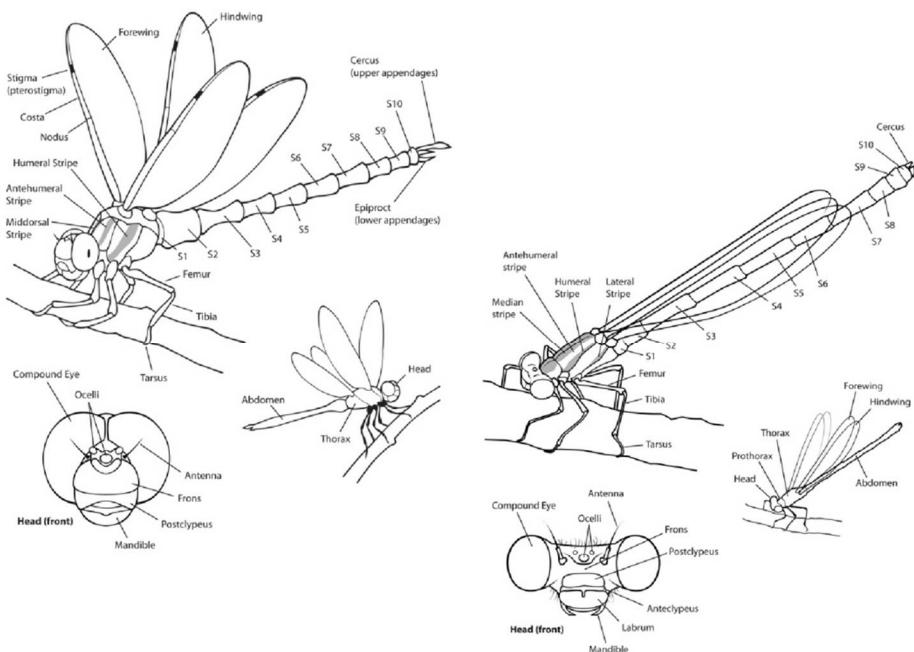
Agriphila vulgivagellus, the **vagabond crambus** or **vagabond sod webworm**, is a moth of the family *Crambidae*. Adults are on wing from August to October in one generation per year. The larvae feed on various grasses, as well as wheat, rye and other grains. Immature larvae overwinter. (Photo by D. Halter)



Juniper Budworm Moth

The larva of juniper budworm goes through 8-11 instars, or caterpillar stages, as it grows. Then it changes to a pupa from which the adult moth emerges. Life history studies on this insect were done in Kansas where one generation per year was reported. However, records of adult moths in the Texas A&M University insect

collection indicate there are probably two generations per year in Texas (labeled specimens showed moths were collected in June and October). As the larvae feed in the juniper foliage, they construct silken tubes and pupation occurs in the shelter where the larvae fed. Adult moths appear shortly after pupation occurs. In Kansas, larvae overwinter in the infested juniper trees, pupate in late June and July, and emerge as adult moths in July. In Texas, however, the overwintering stage is not known, but it is probably the egg stage or as very young larvae. The adult moths are about 1/4-inch long and are similar to the color of dead Ashe juniper foliage. They have a mottled tan and brown color pattern on their wings. They are active mostly at night and are attracted to lights. They generally remain at rest on the host plant during the day and only fly when disturbed. Unless they fly, they are difficult to detect. (Texas Forest Service). (Photo by L. Seman)



How to tell a Dragonfly from a Damselfly

Dragonflies hold their wings out to the side. Damselflies fold their wings back along their bodies. Dragonflies have large eyes that take up most of their eyes. Damselfly eyes are spaced on long heads. Both have a larval stage that lives in water.



[**Rambur's Forktail**](#)

Rambur's forktail (*Ischnura ramburii*) is a member of the damselfly family Coenagrionidae. Males are green with blue on abdominal segments 8 and 9. Females



(shown on right) are orange-red, olive green, or similar to males in coloration. This is the most widespread New World *Ischnura*, occurring throughout the Americas from the United States to Chile, as well as Hawaii and the Antilles. (Female photo by D. Halter)



[**Fragile Forktail**](#)

Ischnura posita, the **fragile forktail**, is a species of damselfly in the genus *Ischnura*. It is native to most all of eastern North America. Fragile Forktails are easy to tell apart from other damselflies at the pond. They are tiny, less than an inch long, with long and slender bodies and clear wings. Males are mostly dark iridescent black on top with bright yellow-green markings, including exclamation marks at the shoulders.

Females are bright blue with black markings when they are young and become a deeper blue as they age, but they have blue exclamation marks at the shoulders. Both sexes usually have black markings at the tip of the abdomen. Their habitat is primarily ponds and temporary pools; sometimes small streams and other relatively placid bodies of water. (Photo by D. Halter)



[**Blue-fronted Dancer**](#)

The **blue-fronted dancer** (*Argia apicalis*) is a species of damselfly in the family Coenagrionidae, native to parts of North America. It was first described by the American zoologist Thomas Say in 1840. It is a common species with a wide range. This damselfly ranges in length between about 33 and 40 mm (1.3 and 1.6 in). Most males have a blue thorax, the plates being separated by a few black lines, and also have a

color-tipped abdomen, segments eight, nine and ten being bright blue. The remaining segments are dark brown. However the color of the thorax of *Argia apicalis* is variable and some males can be greyish-black rather than blue. They can change from one phase to the other and back again over the course of several days, with several intervening variations on the way; neither color phase seems to be particularly related to age or sexual maturity. Females exhibit three thoracic color phases: brown, turquoise and grayish-black. Again the phase change often takes place in steps, with no relation to age or maturity. (Photo by D. Halter)



Familiar Bluet

The **familiar bluet** (*Enallagma civile*) is a damselfly of the family Coenagrionidae, native to much of the United States and southern Canada and is one of the brightest blues of any damselfly. Even though they are small, they are fairly easy to see. Females are brown, instead of blue. Their eggs are deposited in algae, roots, leaves, and upright stems. Females usually stay submerged for up to twelve minutes when egg-laying, but have stayed submerged for up to an hour (Photo by D. Halter)



Jade Clubtail

The **jade clubtail** (*Arigomphus submedianus*) is a dragonfly in the Gomphidae family. Uncommon and found in the eastern Great Plains area, it is often found perching on the bare shore of a pond, floating objects or projecting sticks. It's preferred habitat is permanent mud-bottomed ponds, sloughs and lakes.



Variegated Meadowhawk

The **variegated meadowhawk** (*Sympetrum corruptum*) is a dragonfly of the family Libellulidae, native to North America. The variegated meadowhawk is a small to medium-sized dragonfly with a slender abdomen, often

reaching a length of $1\frac{5}{8}$ " to $1\frac{11}{12}$ ". The male is commonly dark brownish black with an abdomen of bright red, pink, and golden brown. The thorax may be marked with a pair of yellow dots on each side. The leading edges of the wings are marked with pinkish. The females are similar in color but not as brightly colored, with gray and yellow replacing the red of the male. (Photos by D. Halter)



Widow Skimmer

The **Widow Skimmer** (*Libellula luctuosa*) is one of the group of dragonflies known as King Skimmers. The species can be found commonly across much of the United States. Adults have a steely blue body area but juveniles are yellow with brown



stipes. Wings of both sexes are marked with prominent black basal bands. Adult males develop broad white spots at midwing (right photo). (Photos by D. Halter)



Halloween Pennant

The **Halloween pennant** (*Celithemis eponina*) is a species of dragonfly in the family Libellulidae. It is native to eastern North America, as far west as Colorado. The Halloween pennant has been described as looking very similar to a butterfly. Its wings are entirely orange-yellow in color with dark brown bands, the Halloween inspiration for its common name. Dragonflies of its genus perch at the tips of plants,

waving in the breeze like pennants. (Photo by D. Halter)



Black Saddlebags

The **Black Saddlebags** (*Tramea lacerata*) is a species of skimmer dragonfly found throughout North America. It has distinctive wings with characteristic black blotches at their proximal ends, which make the dragonfly look as though it is wearing saddlebags. Some populations of this dragonfly undertake migrations. Both the larvae and adult forms are efficient predators of mosquitoes, so they are a helpful insect to

have in wet areas where mosquito infestations occur. (Photo by D. Halter)



Red Saddlebags

The **Red Saddlebags** (*Tramea onusta*) is a species of skimmer dragonfly found throughout the eastern United States. It has translucent wings with red veins, and has characteristic dark red blotches at their proximal base, which makes the dragonfly look as if it is carrying saddlebags when flying. The last two bands of the tail of these dragonflies are black.



Eastern Pondhawk

The **Eastern Pondhawk** (*Erythemis simplicicollis*) is a dragonfly of the family Libellulidae, native to the eastern two-thirds of the United States. The species is distinguished in that the female is bright green and the adult male has a blue abdomen with a green face and green and blue thorax. (Photos by D. Halter)





Blue Dasher

The **blue dasher** (*Pachydiplax longipennis*) is a dragonfly of the skimmer family. It is very common and widely distributed through North America. The males are easy to recognize with their vibrant blue color, yellow-striped thorax, and metallic green eyes. Females are somewhat less colorful than the male, an example of sexual

dimorphism. While they have a matching yellow-striped thorax, their abdomen has a distinct brown and yellow striping that sets them apart from the male, along with contrasting red eyes. Both sexes develop a frosted color with age. The males compete for females by trying to get underneath their opponent and force them upwards away from the water. (Photos by D. Halter)



Eastern Amberwing

The **eastern amberwing** (*Perithemis tenera*) is a species of dragonfly in the family Libellulidae. It is very small, reaching a total length of no more than one inch. The males have orange or amber wings. The eastern amberwing dragonfly is one of the only types of dragonfly that actively mimics a wasp. The yellow and brown stripes on its abdomen encourage predators to stay away. When perched, they will wiggle their abdomen

and wings in a wasp-like fashion to deter other animals from eating it. (Photo by D. Halter)



Roseate Skimmer

The **Roseate Skimmer** (*Orthemis ferruginea*) is a species dragonfly in the family Libellulidae. It is native to the Americas, where its distribution extends from the United States to Brazil. It is common and widespread. The male of the species has a rose pink and red abdomen. The female has an orange-brown abdomen with clear orange veins and a brownish thorax with a light stripe down the back. It's about 2 inches in length with a wingspan of 1 ½ - 2 inches long. Males

are highly territorial, defending their territory aggressively against other male Roseate Skimmers that fly near. (Photo by D. Halter)



Common Whitetail

The **Common Whitetail Skimmer** (*Plathemis lydia*) is a common dragonfly across much of North America, with a striking and unusual appearance. The



male's chunky white body, combined with the brownish-black bands on its otherwise translucent wings, giving it a checkered look. Females have a brown body and a different pattern of wing spots, and white zigzag abdominal stripes. (*Photos by D. Halter*)



Russet-tipped Clubtail

The **Russet-tipped Clubtail**, *Stylurus plagiatus*, is a member of the *Stylurus*, or Hanging Clubtail genus. These clubtails often perch on leaves, which tip with their weight, leaving the dragonflies hanging nearly vertically. Males patrol large areas over water and may hover motionless before zipping off to a new location. The Russet-tipped Clubtail is long and slender with a green and black (or brown) striped thorax and a russet to yellow club. The green markings on top of the thorax may be in the shape of a W. The eyes may be blue, turquoise or green. The female is similarly marked, but has a smaller club. (*Photo by D. Halter*)



Common Green Darner

The **Green Darner**, or **Common Green Darner** (*Anax junius*), named after its resemblance to a darning-needle, is a species of dragonfly in the family Aeshnidae. It is one of the

most common and abundant species, found throughout North America. It is well known for its great migration distance from the northern United States south into Texas and Mexico. The Common Green Darner is one of the largest extant dragonflies; males grow to 3" in length, with a wingspan up to 3.1". Males are blue and green. Females are all green. They have a "cyclops" pattern on their heads. When at rest, the darners hang perpendicular to the ground, not horizontal. (*Right photo by D. Halter*).



Field Crickets

Field crickets are insects of order Orthoptera. These crickets are in subfamily Gryllinae of family Gryllidae. They make the distinctive "chirping" sound by the movement of "scrapers" found on the edge of the left forewing across a row of teeth-like structures located on the underside of the right forewing. The male field cricket generates a three note, highly trilled song

which is answered by a more simplified, two note female song. The rate of chirping is directly influenced by temperature. Counting the number of chirps a male field cricket makes in 13 seconds, and then adding 40 to that number generates an approximate index of the environmental temperature (in degrees Fahrenheit). Field crickets are omnivorous. They eat dried organic

materials, fresh plant matter, small fruits, seeds, and, at extreme need, both living and dead insects. Plants such as crabgrass, ragweed, and chicory seem to be highly favored food sources. Large populations can cause significant damage to agricultural crops, and when this species enters houses (typically in the late summer and early fall) wool, cotton, silk, nylon, rubber, and leather materials may be consumed. Population explosions in this species typical come after rainfall relieving prolonged drought conditions. The crickets feed at night and spend most of the daylight hours in warm, dark refuge. A field cricket must eat its body weight or more in food every day. In China, a Cricket singing in the home is a sign of good luck and potential wealth. So cherished are they that the Chinese often display them in the home in beautiful cages made from bamboo. Crickets are also raised commercially for the pet industry. (*Photo by D. Halter*)



Spotted Camel Cricket

The **Spotted Camel Cricket**, *Ceuthophilus maculatus*, is a nocturnal insect. They are light tan and brown, about 1-1 1/4" long, and they don't have wings. Camel crickets are related to cave crickets and occur across the US, all continents, and most islands. They like moist, dark, and damp environments. They have very large hind legs and jump to get away from predators, usually by hopping right at them. Camel crickets are

omnivores and will eat fungus, plant matter, insects, and even fabric or cloth. Camel crickets don't "chirp" like other crickets, finding their mates using pheromones. Males use the spines on their hind legs to fight with other competing males. (*Photo by S. Hydes*)



Ponderous Spur-throat Grasshopper

Melanoplus ponderosus, the **ponderous spur-throat grasshopper**, is a species of spur-throated grasshopper in the family Acrididae. It is probably the most common species in North America. They can be yellow, orange, or green with additional shades of brown or red. They can cause agricultural

damage in large numbers. (*Photo by D. Halter*)



Admirable Grasshopper

Syrbula admirabilis, known generally as **Admirable Grasshopper**, is a species of slant-faced grasshopper in the family Acrididae. Other common names include the **handsome grasshopper** and **handsome locust**. It is found in Central America and North America. The male is brown with

tan and yellow markings and the female is bright green and tan. The antennae are threadlike, with the males having club-like tips. Males are strong fliers. Females are weaker flyers and prefer to hop. (*Photos by D. Halter*)





Green-striped Grasshopper

Chortophaga viridifasciata, the **green-striped grasshopper**, is a species of band-winged grasshopper in the family Acrididae that is variable in color. It is found in Central America and North America, ranging from British Columbia to the Gulf of Mexico (mostly east of the Rocky Mountains), south to Costa Rica. Males are mostly brown with few if any green markings. Females are heavier-bodied than males and are usually green with brown markings. In flight, the hind wing is exposed, pale yellow at the base, with the outer half smoky brown or black. Flight covers a short distance and may be noisy.



Two-striped Mermiria

The **Two-striped Mermiria** (*Mermiria bivittata*) is large and long-winged grasshopper. It is common in the tallgrass prairie where it may reach densities of one adult per square yard in unplowed native grassland. Its habitat consists primarily of tall grasses: big bluestem, yellow indiangrass, and switchgrass, and it frequently inhabits these grasses on slopes and hills. Small, edaphic stands of tall grasses in the mixed grass, shortgrass, bunchgrass, and desert prairies also provide suitable habitats for the species. In addition, this grasshopper may live in luxuriant stands of mix grasses in the mixed grass prairie. (Photo by D. Halter)



Snakeweed Grasshopper

Hesperotettix viridis, known generally as the **snakeweed grasshopper** or **meadow purple-striped grasshopper**, is a species of spur-throated grasshopper in the family Acrididae. This is actually a beneficial grasshopper as it prefers to eat snakeweeds, but also feeds on Missouri Goldenrod, burroweeds and rabbitbushes, occurring wherever these plants flourish. Most of these plants are poisonous to livestock. With its strong flight, it can travel long distances. (Photo by D. Halter)

Differential Grasshopper



The **differential grasshopper** (*Melanoplus differentialis*) is a species of grasshopper belonging to the genus *Melanoplus* found throughout northern Mexico, central United States and southern Ontario, Canada. It is considered a pest in most of its range, but they do feed on ragweeds, making them somewhat beneficial. Adult differential grasshoppers are brown to olive green and yellow and up to 1-3/4 inches long. Some individuals are melanistic (black). The hind legs are enlarged for jumping and are marked with chevron-like black markings, with spines on the back legs. While these chevron markings are not unique to this species, it is rare to see it on other grasshoppers. These grasshoppers are an important component in the food chain for many animals, including foxes, raccoons, opossums, squirrels, amphibians, lizards, snakes, birds, turtles, bats, and many predatory spiders and insects. (Photos by D. Halter)



American Bird Grasshopper

Schistocerca americana is a species of grasshopper in the family Acrididae known commonly as the **American grasshopper** and **American bird grasshopper**. It is native to North America, where it occurs in the eastern and central United States into Mexico. Growing up to 2" long for females, slightly smaller for males, this is a large grasshopper. The body of the adult is generally yellow-brown in color and the wings are pale with large brown spots. In this species, the coloration of the nymphs is especially influenced by temperature. Nymphs are various shades of green, yellow, or red, usually with a pattern of black markings. They are often red at lower temperatures, but at higher temperatures, only green and yellow shades occur. Black patterning is also influenced by temperature, with lower temperatures inducing darker markings. This species overwinters as an adult rather than in the egg, as many other grasshoppers do.

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Obscure Bird Grasshopper

Schistocerca obscura, the **obscure bird grasshopper**, is a species of grasshopper in the family Acrididae. The species occurs in the United States, from Maryland south to Florida and west to Arizona. Adult males 1.5 inches, with females up to 2.5 inches. The body is green with gray or reddish-brown forewings. The side of knee is bright green, yellow, or whitish, conspicuously contrasting against black on dorsolateral edge of knee; similarly-colored spot on side of

thorax behind pronotum. The top of hind femur has two black bars; usually has pale yellow dorsal stripe, sometimes lacking in females. They are capable of long distance seasonal migrations that take them outside of their home range. (Photo by D. Halter)



Bathroom Moth Midge

Drain flies, sink flies, filter flies, or sewer gnats (**Psychodidae**) are small true flies (Diptera) with short, hairy bodies and wings giving them a "furry" moth-like appearance, hence one of their common names, **moth flies**. There are more than 4,700 known species worldwide, most of them native to the humid tropics. Both the body and the wings are covered with thick gray-brown hair. The wings are pointed, and have some white spots (hence the Latin species name). Despite being

a Diptera (a fly), it has a similar appearance to that of a small moth. The antennae show dense setae, each segment with separate whorls. The adults do not feed and live for about 12 days. They spend most of their life perched on walls. They move rarely, and with weak flight. The larvae live in aquatic environments, feeding on organic decaying matter, and take about 18 days to turn into a pupa, which develops into an adult after 5 days. They often infest drains of bathrooms and, for this reason, they are also known as "bath flies" in the United States.



Narrow-headed Marsh Fly

Helophilus fasciatus is a species of syrphid fly in the family Syrphidae. This is a robust, medium-sized, $\frac{3}{8}$ " to $\frac{5}{8}$ " long hoverfly. It is somewhat bee-like in appearance. The thorax is brownish-black with four longitudinal stripes. The two middle (dorsal) stripes are white, whitish, or pale yellow. The larvae feed on submerged plant litter in ponds, mud, manure and silage. Also called the Narrow-headed Sun Fly. (Photo by L. Clepper)



Margined Calligrapher

Toxomerus marginatus, also known as the Calligrapher Fly, is a common species of hoverfly or flower flies. It is found in many parts of North America. The larvae are predators of thrips, aphids, and small caterpillars. Adult feed on a wide range of flowers. They have yellow and black coloration that mimics bees, and may get some protection from predation from that mimicry, but they are far smaller than even the smallest honeybees. They have only one pair of wings, not

two as all bees do, and they have short, stubby antennae, again unlike the longer ropey antennae of bees. (Photo by D. Halter)

Maize Calligrapher



The Maize Calligrapher, *Toxomerus politus*, is a species of [hoverfly](#) (Diptera: Syrphidae). It is known from North, Central and South America. Although little is known about the early stages of this species, associations with corn have been noted. The adults and likely the larvae feed on the pollen of the corn plants. Hover flies are completely harmless to humans and have no ability to bite or sting. After bee species, the hover fly is a top pollinator. Adults feed exclusively on nectar and pollen. The larvae are important pest control for plants, eating soft-bodied insects such as aphids. (*Photo by D. Halter*)



Oblique Streaktail

Allograpta obliqua is a common North species of hoverfly. The larvae are important predators of aphids. Adults have yellow stripes on the thorax, and cross banding on the abdomen; with four longitudinal, yellow stripes or spots on the fourth and fifth tergite. The yellow face lacking a complete median stripe. (*Photo by D. Halter*)



Yellow-shouldered Drone Fly

Eristalis stipator, the yellow-shouldered drone fly, is a species of hoverfly native to North America. It is abundant in western North America, with a few scattered records in the east. This flower fly is a bee mimic and is approximately 1/2 inch in length. The eyes are large and dark brown. The thorax is plain brown. There is a thin white band and then a thick black band on the 2nd abdominal segment with an open gold band superimposed on it. The rest of the abdomen is black with thin white cross bands. The 3rd segment is shiny black. The dorsal surface of the thorax is covered with short buff-colored hairs.



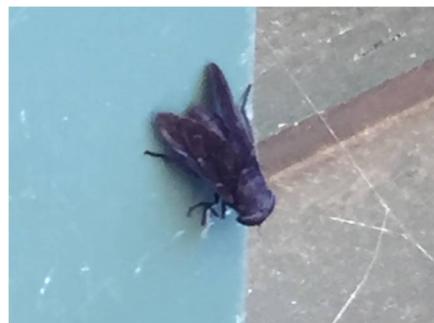
Large-tailed Aphideater

Eupeodes volucris, also known as the **bird hover fly**, is a species of syrphid fly in the family *Syrphidae*. It is found throughout the United States. Males may defend a territory from other males. (*Photo by D. Halter*)



Mexican Bromeliad Fly

The Mexican Bromeliad Fly (also called the Mexican Cactus Fly), *Copestylum mexicanum*, is about 3/4 of an inch long and is one of the Flower Flies or Hover Flies in the family *Syrphidae*. This native pollinator lays its eggs in rotting plant material, especially rotting cacti. It is thought that they only go into dying cacti and do not attack healthy cacti, but not much known about their biology. The larvae breed in rotting cactus tissue. (Photo by D. Halter)



Black Horse Fly

Tabanus is a genus of biting horseflies of the family *Tabanidae*. Females have scissor-like mouthparts that aim to cut the skin. The horsefly can then lap up the blood. Horseflies of this genus are known to be potential vectors of anthrax and worms. They are more common in the eastern United States. They are able to survive a wide range of habitats. The Black Horse Fly has large compound eyes, that

on females are separated and continuous on males. Short stout hairs cover the body and the wing venation is pronounced. The species is usually breed near aquatic environments, with the eggs laid in masses near the water's edge. Once the eggs hatch, the larva drop into water or burrow into a moist environment. In colder climates the larvae will overwinter, then move to drier soil to pupate. (Photo by L. Seman)



Secondary Screwworm

Cochliomyia macellaria, the secondary screwworm, is a species of blow fly in the family Calliphoridae. The livestock industry considers the secondary screwworm an important pest because of the enormous economic losses caused to cattle. This species must have access to decomposing carcasses, carrion or rotten meat in order to complete its life cycle. Therefore, the proper removal of garbage and carcasses will disrupt the life cycle.



Banded Robber Fly

Triorla interrupta is a species of robber fly in the family Asilidae. Robber flies feed on other insects, waiting from a low perch and ambushing their prey, catching them in mid-flight. Both adults and larvae are predatory. The fly attacks its prey by stabbing it with its short, strong proboscis, injecting the victim with saliva containing neurotoxic and proteolytic enzymes which very rapidly paralyze the victim and soon digest the insides; the fly then sucks the liquefied material through the proboscis.



Triorla interrupta

Triorla interrupta is a species of robber flies in the family Asilidae. It is predatory. Often it takes very large insect prey, such as grasshoppers, dragonflies, horseflies. *Triorla interrupta* is a medium to large robber fly, closely related to the genus *Efferia*. It is common through much of the southern United States. It prefers open habitats. (Photo by D. Halter)



Emergent Mayfly

Hexagenia bilineata is a species of mayfly in the family Ephemeridae. It is native to North America where it is found in the Upper Mississippi Valley. Sometimes adults of this mayfly are so abundant as to cause a nuisance because of their enormous numbers. The larvae are aquatic and burrow in mud and the adult insects have brief lives. When the adults are ready to emerge, the mayfly nymphs (larvae) swim to the surface of the water during the night. Their skin splits

and winged subadult struggle free, usually in less than a minute, and fly to nearby trees to rest. They are a dull gray color and have short, coarse legs, bristly cerci and cloudy, grayish wings. Some eight to eighteen hours later, these subadults moult into mature adults. The adults are altogether more delicate in appearance than the subadults; the wings are transparent, the legs are longer and more slender, the cerci lack bristles, the eyes are larger and the body is patterned in brown and cream. The females are much larger than the males. Adults have short, flexible antennae, large compound eyes, three ocelli and non-functional mouthparts. In most species, the males' eyes are large and the front legs unusually long, for use in locating and grasping females during the mid-air mating. Adults do not eat and die soon after mating. The nymph stage of mayflies may last from several months to several years, depending on species and environmental conditions. (Photo by D. Halter)



Poecilanthrax lucifer

Poecilanthrax lucifer is a species of bee fly in the family Bombyliidae. It is known to parasitize noctuid caterpillars, such as the fall armyworm. Anthrax in original Greek means “charcoal” in reference to the often black color of the adult flies. Likewise, the original Latin meaning of the word “Lucifer” is “morning star” or “Venus” when used as a noun and “light-bringing” when used as an adjective. The name

means “Black Bringer of Light.”



Long-necked Seed Bug

Myodocha serripes, the **long-necked seed bug**, is a species of dirt-colored seed bug in the family Rhyparochromidae. It is found in North America. It is found under dead leaves and under rocks, but is attracted



to lights, as well. It prefers clearings and meadows, but can be found in open woodlands as well. Despite the fact that it has enlarged femurs and looks like a predator, it eats only seeds. (Photos by D. Halter)



Red-shouldered Bug

Jadera haematoloma, the **red-shouldered bug, goldenrain-tree bug or soapberry bug** is a species of true bug that lives throughout the United States and south to northern South America. It feeds on seeds within the soapberry plant family, Sapindaceae, and is known to rapidly adapt to feeding on particular hosts. It is most closely associated with the Western Soap Berry, feeding on the fruit and seeds. People often confuse this species with the boxelder bug.



Wheel Bug

The **wheel bug** (*Arilus cristatus*) is in the family Reduviidae (literally, "hangnail"), which consists of assassin bugs. The species is one of the largest terrestrial true bugs in North America, reaching up to 1.5 inches in length in their adult stage. However, males are smaller in terms of their length and width when compared to females. A characteristic structure is the wheel-shaped pronotal armor. Wheel bugs prey on caterpillars and beetle grubs, such as Japanese beetles, the cabbage worm, orange dogs, tent caterpillars, and the Mexican bean beetle, all of which they

pierce with their beak to inject salivary fluids that dissolve soft tissue. Wheel bugs are most active in daylight, though they may engage in predatory behaviors at night in areas illuminated by lights. Because most of their prey are pests, wheel bugs are considered beneficial. They are camouflaged and very shy, residing in leafy areas and hiding whenever possible. Specifically, habitats of the wheel bug include sunflowers, goldenrod, cotton, trunks of locust trees, and various fruit and tree groves. They have membranous wings, allowing for clumsy, noisy flight which can easily be mistaken for the flight of a large grasshopper. The adult is gray to brownish gray in color and black shortly after molting, but the nymphs (which do not yet have the wheel-shaped structure) have bright red or orange abdomens.



Bee Assassin

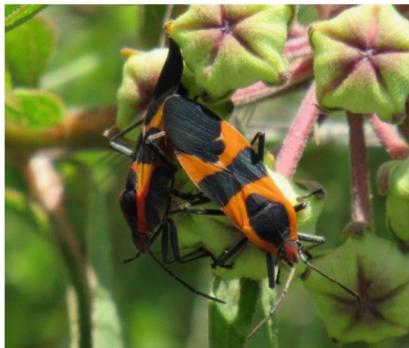
As its name would likely suggest, the Bee Assassin (*Apiomerus crassipes*) is commonly reputed to feed on bees. Some notations state that Bee Assassin Bug is a major threat to honey bee populations but there has not yet been unbiased, research-based findings to support or disclaim this contention. It is found throughout North America. Bee assassins can fly, and stalk flowering plants that are visited

by bees, flies, and other pollinating insects. Bee Assassin Bugs are usually dark in color with yellow or red markings on the sides of the abdomen and are about $\frac{3}{4}$ " long. As is common in nature, the bright colors advertise their own distastefulness to predators including birds. They have sticky hairs on their front legs which help them secure their prey. Although most assassin bugs are slow-moving and nonaggressive, they will use their rostrum in self-defense if handled carelessly. Such bites may be rather painful to humans because the bugs inject the same salivary secretion used to dissolve the tissues of their prey. The symptoms are an intense burning sensation, often followed by a small, itchy lump that may persist for several days. However, no true toxin is involved so it is rare for the reaction to last long or to extend beyond the site of the bite. The symptoms are an intense burning sensation, often followed by a small, itchy lump that may persist for several days. However, no true toxin is involved so it is rare for the reaction to last long or to extend beyond the site of the bite. The beneficial qualities of assassin bugs far outweigh their negative potential.



Black Corsair

Melanolestes picipes, known generally as the **black corsair** or **black May beetle-eater**, is a species of corsair in the family *Reduviidae*. It is a black-colored insect about 0.5 to 0.8 inch long and usually found under stones and bark, can inflict painful bites on humans. It can be attracted to lights. It is one of the most abundant assassin bugs in the United States. (Photo by D. Halter)



Large Milkweed Bug

The milkweed bug, *Oncopeltus fasciatus*, is a medium-sized hemipteran (true bug) of the family Lygaeidae. It feeds mainly on grains, particularly those of the milkweed. Like all hemiptera, it feeds through a long mouthpart known as a rostrum. Adults can range from 10–18 mm in length and have a red/orange and black X-shaped pattern on their wings underneath the triangle that is typical to hemipterans. This feature makes the bug easily seen, acting as a warning to

predators of distastefulness. *O. fasciatus* is brightly colored to warn of its toxicity and is noxious to predators. The ventral side of the fourth abdominal segment bears a black band in the male and two black spots in the female. Juveniles are born mostly red with black antennae and a few black spots, throughout growth the specialist herbivore that frequently consumes common milkweed seeds, black spots are developed as well as wing pads. Eggs of this insect are bright orange and easily detectable. Juvenile *O. fasciatus* require the seed of milkweed plants for development and growth. Adults can survive on other types of seeds such as: sunflower, watermelon, almond and cashew. Nymphs live in large groups of about 20 individuals on the plant. (Photo by D. Halter)



Small Milkweed Bug

Lygaeus kalmii, known generally as the **small milkweed bug** or **common milkweed bug**, is a species of seed bug in the family Lygaeidae. It is found in Central America and North America. Small milkweed bugs' primary sources of nutrients are flower nectar and milkweed seeds. If these food sources are limited, they may feed on other insects. Like their larger relative, they are brightly colored to warn potential predators

that they don't taste good.



Eastern Leaf-footed Bug

Leptoglossus phyllopus is a species of leaf-footed bugs in the same genus as the western conifer seed bug (*L. occidentalis*) found throughout the southern United States from Florida to California, through Mexico and as far south as Costa Rica. These bugs are a common garden insect which may damage a wide variety of crops including cotton, peaches and tomatoes,

and seeds such as beans, black-eyed peas and sorghum. Like other bugs, *L. phyllopus* suck juices from plants by puncturing them with their sucking mouth parts, making them resistant to ingested pesticides. A toxin is injected into the plant when piercing its skin, causing discoloration and hard spots on fruits. The adult bugs are highly resistant to pesticides; however, they are vulnerable in their bright orange nymph stage. Trap crops can be used to lure them away from desired plants and to encourage predator populations. It emits a foul odor when handled.

Giant Leaf-footed Bug



Acanthocephala declivis, the giant leaf-footed bug, is a species of North American true bugs with a range from the southern United States to Guatemala and some Caribbean islands. It is the largest of this genus within this range, generally growing to be 1.1 to 1.3 inches long. It can be distinguished from similar species by its much more broadly expanding pronotum, which extends much further than the abdomen, and the blunt tubercles on the midline of the anterior pronotal lobe, which is not present in other *Acanthocephala* species within its range. They feed on plant sap.



Say's Mantid Fly

Dicromantispa sayi is a species of mantidfly in the family Mantispidae. It is found in Central and North America. The head is brown to black with pale yellow marks. This is one odd insect, appearing to be a mismatch of insect and praying mantis. The face has a longitudinal yellow stripe each side of center. The middle dark area appears as a dark stripe, sometimes incomplete. Pattern of yellow oblong spots on top of the head can be obscure. The eyes are multi-colored. The wings clear with brown veins. The abdomen is yellowish-brown to dark brown with yellow marks. Female abdomens are always darker, and may be entirely black; the yellow marks vary considerably. Mantidflies inhabit forest edges and prairies where ever spiders are present. Adults feed on small flying insects. Larvae hunt for just about any species spider eggs, but their major hosts are Wolf and Hunting spiders, and Running Crab Spider. The larvae hatch, wander, find and either penetrate wolf spider egg sacs, or hitch a ride on adult female spiders ready to lay eggs. (Photo by D. Halter)



Carolina Mantis

The **Carolina mantis** (*Stagmomantis carolina*) is a species of praying mantis of the subfamily Stagmomantinae. In roughly one quarter of the time, the female will eat the male after courtship, though this species will engage in cannibalism regardless of age or

gender, if the opportunity presents itself. Carolina mantis oothecae (egg cases – shown at bottom right) can be purchased in garden supply centers as a means of biological control of pest



insects (make sure those purchased are this species. Do not buy the invasive Chinese Mantis.) The Carolina mantis has a dusty brown, gray or green color useful as camouflage in certain environments.



The Carolina mantis' color varies because the nymphs are able to adjust their color to match the environment they are in at the time of molting. They can adjust their color over each molt, if necessary, until they reach their final molt to adulthood. An unusual trait is that its wings



only extend three-quarters of the way down the abdomen in mature females. Females have plump abdomens. Both adult male and female *Stagmomantis carolina* have a dark-colored dot on each of their forewings (outer wings), which may be partially hidden in brown or dark color morph individuals. (Photo: male, oothecae and young by D. Halter)



Walking Sticks

The **Phasmatodea** are an order of insects whose members are variously known as **stick insects**, **stick-bugs**, **walking sticks**, or **bug sticks**. The group's name is derived from the Ancient Greek *phasma*, meaning an apparition or phantom, referring to their resemblance to vegetation while in fact being animals. Their natural camouflage makes them difficult for predators to detect. Members of the order are found on all continents except Antarctica, but they are most abundant in the tropics and subtropics. They are herbivorous, with many species living unobtrusively in the tree canopy. They have an incomplete metamorphosis life cycle with three stages: egg, nymph and adult. Many phasmids are parthenogenic (do not need males to reproduce), and do not require fertilized eggs for female offspring to be produced. In hotter climates, they may breed all year round; in more temperate regions, the females lay eggs in the autumn before

dying, and the new generation hatches in the spring. Some species have wings and can disperse by flying, while others are more restricted. Males have pincher-like appendages on the end of their abdomen, used to hold onto the females when mating. (Photo by D. Halter)



Pale-sided Leafhopper

There is no information on this particular species available. A leafhopper is the common name for any species from the family Cicadellidae. These minute insects, colloquially known as hoppers, are plant feeders that suck plant sap from grass, shrubs, or trees. Their hind legs are modified for jumping, and are covered with hairs that facilitate the spreading of a secretion over their bodies that acts as a water repellent and carrier of pheromones. The Pale-sided Leafhopper is pale green with a brown head and streak down the back. (Photo by L. Seman)



WalkingTrue Cochineal Bug

The **true cochineal bug**, *Dactylopius coccus*) is soft-bodied, flat, oval-shaped scale insect native to tropical and subtropical South America through North America (Mexico and the Southwest United States). The females, wingless and about 0.20" long, cluster on prickly pear cacti pads. They penetrate the cactus with their beak-like mouthparts and feed on its juices, remaining immobile unless alarmed. After mating, the fertilized female increases in size and gives birth to tiny nymphs. The nymphs secrete a waxy, white substance over their bodies for protection from water loss and excessive sun. This substance makes the cochineal insect appear white or grey from the outside, though the body of the insect and its nymphs produces the red pigment, which makes the insides of the insect look dark purple. Adult males can be distinguished from females in that males have wings, and are much smaller. The natural dye carmine is derived from this insect. The insects are collected by brushing them off the plants, and then dried.

The carmine dye was used in North America in the 15th century for coloring fabrics and became an important export good during the colonial period. Spain had the rights to this dye, not allowing anyone else to obtain it. Shipped back to Spain, it was a tempting target, as pirates were not only after gold and silver. Cochineal was even more valuable than those precious metals at one time. After synthetic pigments and dyes were invented in the late 19th century, natural-dye production gradually diminished. Health fears over artificial food additives, however, have renewed the popularity of cochineal dyes, and the increased demand has made cultivation of the insect profitable again, with Peru being the largest exporter. Some towns in the Mexican state of Oaxaca are still working in handmade textiles using this cochineal dye.

Have you seen a species not listed here? Please report your sightings to inaturalist.org.

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Special Thanks to Lynn Seman, Sandy Underwood

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