Davis, California, USA
Field Guide to Insects of Davis

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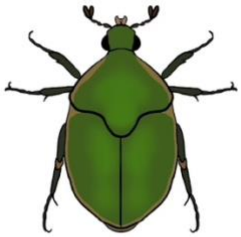
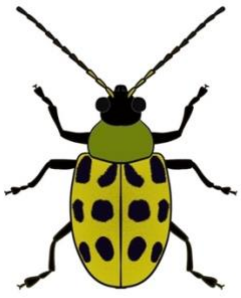
1 *Lygaeus kalmii*
LYGAEIDAE
Small Milkweed Bug
Adult: BL 10-12 mm, dark gray to black with red band on forewing that forms an "X" shape.
Development: 3 life stages: egg, nymph (5 instars), and adult. 50-80 days per generation, can have multiple generations per year. Oblong, yellow eggs deposited on milkweed plants in the spring. All red abdomen on nymphs, develops black spots with age. Adults overwinter.
Diet: Sap and seeds from milkweed, flower nectar, scavenged foods, other invertebrates such as caterpillars, and larval/pupal stages of flies, bees, and beetles.
Habitat/Range: Often found in open grassy areas where milkweeds and wildflowers are growing. Native to North America.

2 *Murgantia histrionica*
PENTATOMIDAE
Harlequin Bug
Adult: BL 7-11 mm, black with variable orange or red markings.
Development: 3 life stages: egg, nymph (5-6 instars), and adult. 50-80 days per generation, can have multiple generations per year. White eggs with black rings deposited in clusters, nymphs are shiny black with white, yellow, and orange markings. All stages live on plants in the mustard family and survive year-round in warmer regions of CA.
Diet: Crucifers, nightshades, fruit trees, and field crops. Uses piercing/sucking mouthparts to consume fluids which destroys plant tissue.
Habitat/Range: Generally found in urban and agricultural areas. Native to Mesoamerica. Invasive species in southern U.S. from coast to coast.

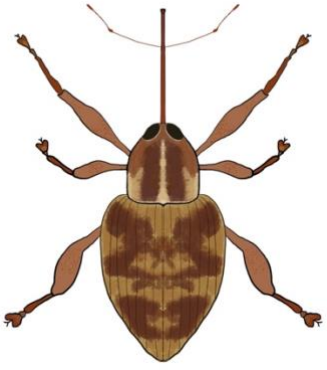


3 *Cotinis mutabilis*
SCARABAEIDAE
Figeater Beetle
Adult: BL 17-34 mm, iridescent green with tan outline on elytra.
Development: 4 life stages: egg, larva (3 instars), pupa and adult. 1-2 years per generation. Oval, white eggs laid beneath organic matter. Larvae overwinter and in spring they feed on decaying organic matter, pupate in soil, and emerge as adults.
Diet: Adults feed on ripe figs, apricots, peaches, plums, and grapes.
Habitat/Range: Found in the desert and other wild habitats and in urban and agricultural areas. Native to the Southwestern U.S. and Mexico but have increased their range up the CA coast and central valley.

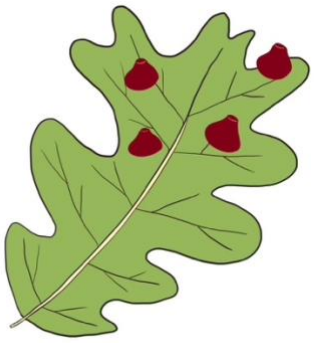
4 *Hippodamia convergens*
COCCINELLIDAE
Convergent Lady Beetle
Adult: BL 4-7 mm, red/orange elytra, commonly with 13 black spots, some with fewer spots or none. Thorax is black with a white margin.
Development: 4 life stages: egg, larva (4 instars), pupa and adult. Two generations per year. Oblong, yellow eggs laid in clusters on leaves near aphids or other prey in spring and summer. Larvae resemble alligators and are black with orange splotches. Adults overwinter in aggregations.
Diet: Adults and larvae eat aphids, soft bodied insects, and insect eggs.
Habitat/Range: Can be found in almost any habitat where aphids exist. Native throughout North America and Central America.



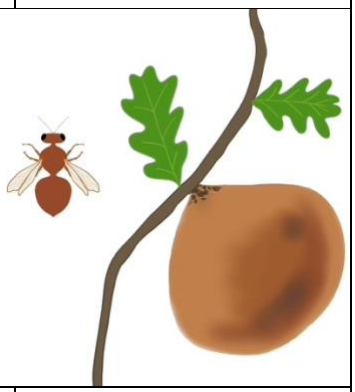
5 *Diabrotica undecimpunctata*
CHRYSOMELIDAE
Spotted Cucumber Beetle
Adult: BL 5-6 mm, yellow green with 12 black spots on elytra, black legs, and head. Can overwinter as adult.
Development: 4 life stages: egg, larva (3 instars), pupa and adult. Oval, yellow eggs depositing in soil crevices or at base of cucurbit plants. Larvae are slender and white, feed on plant roots and pupate in the soil. 30-



6 *Curculio occidentis*
CURCULIONIDAE
Acorn Weevil
Adult: BL 4-10 mm, mottled brown with very long, thin snout.
Development: 4 life stages: egg, larva, pupa, and adult. 1-2 years per generation. In summer, adults chew a hole into acorns on trees and lay a couple eggs in the middle. Larvae are creamy white with a brown head and feed on the acorn and mature around the time the acorns drop and



7 *Andricus kingi*
CYNIPIDAE
Red Cone Gall Wasp
Adult: BL 2-3 mm, brown, round abdomen, and short-lived.
Development: They have a complex life cycle. 4 life stages: egg, larva, pupa, and adult. The eggs are laid on some part of the oak trees, in this case the leaves, and larvae secrete chemicals that mimic growth hormones that trick the oak into growing a gall. The larvae then feed



8 *Andricus quercuscalifornicus*
CYNIPIDAE
California Gall Wasp
Adult: BL 2-3 mm, brown, round abdomen and short-lived. This species of gall wasp only contains females.
Development: They have a complex life cycle. 4 life stages: egg, larva, pupa, and adult. The eggs are laid on some part of the oak trees, in this case the stems, and larvae secrete chemicals that mimic growth hormones that trick the oak into

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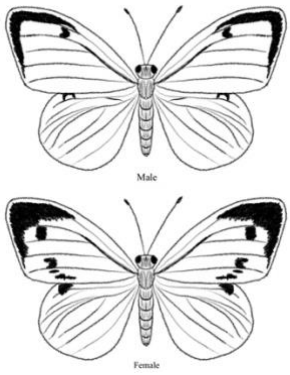
	60 days per generation, can have multiple generations a year. **Diet:** Adults feed on cucurbit plants and a variety of other plants and agricultural crops. **Habitat/Range:** Generally found in urban and agricultural areas. Native to North America but most abundant in southern regions.		overwinter. Larvae leave acorns in early spring and enter the soil to pupate, adults emerge in summer. **Diet:** Acorns and other nuts. **Habitat/Range:** Found where there are Oak and nut trees. Native to western North America.		and develop inside of the gall before emerging as an adult. **Diet:** Gall wasp larvae derive nutrition from the galls they live in. Adults are short-lived and do not feed. **Habitat/Range:** Occur on scrub, valley, and blue oaks. Large numbers can occur on a single tree. Native to California.		growing a gall. The larvae then feed and develop inside of the gall before emerging as an adult. Galls range in size from 2-14 cm across and often contain multiple larvae, as well as parasites and mutual species. **Diet:** Gall wasp larvae derive nutrition from the galls they live in. Adults are short-lived and do not feed. **Habitat/Range:** Occurs on several species of oaks, including scrub and live oaks. Native to California.
							
9	*Danaus plexippus* NYMPHALIDAE **Monarch Butterfly** **Adult:** Wingspan 90-105 mm, orange wings with black veins & two rows of white spots at the edges, black body. Males are larger than females and have a dark spot over a vein on their hind wings. **Development:** 4 life stages: egg, larva (5 instars), pupa and adult. Adults emerge from hibernation in early spring and migrate north and east to find habitat to lay their eggs. Eggs are small, roundish and off-white, laid singly. Larvae have alternating black, white and yellow bands. Front and hind ends have pair of long black filaments. Four generations per year. Fourth generation is born in fall and migrates to overwintering sites in Mexico and CA. **Diet:** Host plants are milkweeds. Larvae sequester toxins to make themselves undesirable to predators in their larval and adult stages. Adults drink nectar from a variety of flowering species. **Habitat/Range:** Multi-generational migration from Mexico to Canada, another population lives on the east coast. Found in open habitats with host plants. Native to North and South America. They are now listed as an endangered species.	**10**	*Colias eurytheme* PIERIDAE **Orange Sulphur Butterfly** **Adult:** Wingspan 40-60 mm, typically yellow/orange with brown/black edging but some females are white and appear greenish. **Development:** 4 life stages: egg, larva (5 instars), pupa, and adult. Eggs are white and turn orange/red as they develop, spindle-shaped and laid singly on vegetation in the spring and summer, typically on plants in the family *Fabaceae*. Larvae are pale-green and later instars have white stripe on each side, velvety in texture. Pupate on host plants. Multiple generations per year. **Diet:** Larvae prefer plants in the family *Fabaceae*, such as clover, alfalfa, and vetch. Adults drink nectar from many flowering species such as alfalfa, clover, milkweeds, and asters. **Habitat/Range:** Open habitats such as meadows, agricultural fields, mountains, and pastures. Native across North America.	**11**	*Pieris rapae* PIERIDAE **Cabbage White Butterfly** **Adult:** Wingspan 32-47 mm, white with several black markings on wings. Females have more markings on wings. **Development:** 4 life stages: egg, larva (5 instars), pupa, and adult. 20-40 days per generation, multiple generations per year. Adults emerge in mid-spring and lay yellowish eggs singly on undersides of outer leaves. Larvae are bluish green with lateral yellow dashes; they develop and pupate on host plants. **Diet:** All Cole crops, prefers broccoli, cabbage, and cauliflower. **Habitat/Range:** Native to Europe, Asia, and North Africa. Found across North America.	**12**	*Battus philenor* PAPILIONIDAE **Pipevine Swallowtail Butterfly** **Adult:** Wingspan 70-100 mm, iridescent blue with row of white spots, when wings are closed the ventral side of the hindwings has a row of seven orange spots. **Development:** 4 life stages: egg, larva (5 instars), pupa, and adult. Eggs are orange/brown, spherical and laid singly or in small clusters on host plants. Larvae are black with two rows of red/orange spots, they pupate on tree trunks or other suitable spots. Several generations per year. **Diet:** Host plants are within the genus *Aristolochia*, commonly known as pipevine plants. Larvae sequester aristolochic acids from the plants and use for defense. Adults drink flower nectar, especially from *Cirsium, Phlox* and *Vernonia spp.* **Habitat/Range:** Open grasslands, woodlands, meadows, and backyard gardens. Native to North America.

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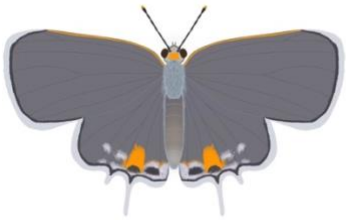
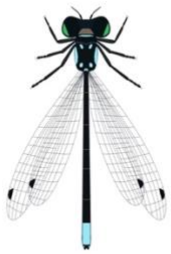


13 *Strymon melinus*
LYCAENIDAE
Gray Hairstreak
Adult: Wingspan 25-32 mm, light gray with black and white line across both wings, orange-capped black spot on bottom of hindwings above tails. Males have orange abdomen, females have blue-grey abdomen and tend to be larger.
Development: 4 life stages: egg, larva (5 instars), pupa, and adult. Eggs are light green and laid singly on or near flower buds of host plant. Larvae are green, color varies depending on host plant. Several generations per year. Some larvae overwinter as pupa and emerge in the spring.
Diet: Larvae can be found on over 20 different plant families including *Fabaceae*, and *Malvaceae*. Adults drink flower nectar from a wide variety of flowers such as mint, clover, and milkweed.
Habitat/Range: Found in almost any open habitat. Native from North America down to Northwestern South America.

14 *Papilio rutulus*
PAPILIONIDAE
Western Tiger Swallowtail Butterfly
Adult: Wingspan 70-100 mm, yellow with black stripes, blue and orange markings on bottom of hindwings.
Development: 4 life stages: egg, larva (5 instars), pupa, and adult. Eggs are deep green, spherical and laid singly on the undersides of leaves. Young larvae resemble bird droppings and as they molt, they turn bright green with yellow and black eyespots. Larvae become orange in later instars and can pupate in ground litter, overwinter, and emerge as adults in the spring. Can have multiple generations a year.
Diet: Larvae feed on a wide variety of host plants such as willows, aspens, poplars, and alders. Adults drink flower nectar, especially from thistles, zinnia, and California buckeye
Habitat/Range: Found in urban areas, rural woodlands, and riparian zones. Native to western North America.



15 *Ischnura cervula*
COENAGRIONIDAE
Pacific Forktail Damselfly
Adult: BL 26-32 mm, males have slender black body with pale blue on the side of the thorax, 4 blue spots on top of thorax and bright blue segments at end of abdomen. Most females are brown, but some are similarly colored to males.
Development: 3 life stages: egg, larva (nymph), and adult. Female oviposits eggs singly in floating vegetation. Adults active from April to October.
Diet: Larvae feed on a wide range of aquatic insects. Adults feed on most soft-bodied flying insects such as mosquitoes, flies, and moths.
Habitat/Range: Found in lowland still-water habitats and slow streams. Native to western North America.

16 *Libellula saturata*
LIBELLULIDAE
Flame Skimmer Dragonfly
Adult: BL 50-60 mm, males are bright orange, females are paler.
Development: 3 life stages: egg, larva (nymph), and adult. Females oviposit eggs in spring and summer, singly and spread out so that nymphs don't cannibalize each other.
Diet: Nymphs feed on aquatic insects such as mosquito larvae, fly larvae, tadpoles, and small fish. Adults feed on a variety of soft-bodied insects such as flies, moths, and ants.
Habitat/Range: Found near streams, warm ponds, hot springs, and urban areas. Native to the western U.S.

17 *Xylocopa sonorina*
APIDAE
Valley Carpenter Bee
Adult: BL 18-26 mm. Males are tawny brown, fuzzy, with light green eyes. Females are black and shiny.
Development: 4 life stages: egg, larva, pupa and adult. Female adults tunnel through wood to make nests.

18 *Bembix spp.*
CRABRONIDAE
Green Eyed Sand Wasp
Adult: BL 19-25 mm, yellow and black or white and black with a banded pattern, many have greenish markings and eyes.
Development: 4 life stages: egg, larva, pupa and adult. Adults dig nest

19 *Latrodectus hesperus*
THERIDIIDAE
Western Black Widow
Adult: Female: BL 6-8 mm, shiny, round body, black with red hourglass pattern on the underside of abdomen. Male: BL 3-6 mm, elongate body, light brown or gray and banded, some may have hourglass pattern like

20 *Phidippus audax*
SALTICIDAE
Bold Jumping Spider
Adult: Female BL 8-19 mm, Male BL 6-13 mm. Fuzzy black body with white spots on abdomen, the chelicerae (fangs) are iridescent green or blue. Abdomen can also be reddish brown with black spots.

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	They add brood cells that contain "bee bread" (a mixture of pollen and nectar) that feeds the larvae. An egg is deposited in each cell and sealed off with sawdust. Female bees and young adult male bees overwinter in the tunnel nest. 80-90 days per generation, can have 1-2 generations per year. **Diet:** Pollen and nectar. Adults are nectar robbers of some flowers that they are too big to enter. **Habitat/Range:** Foothills and valleys with deciduous trees. Native to SW U.S up to northern CA and the eastern Pacific islands.		holes in the sand to lay their eggs. They supply growing larvae with fresh prey, such as flies, and other soft bodied insects. Once larvae grow large enough, they pupate and emerge the following year as adults. **Diet:** Larvae are fed a variety of soft-bodied insects. Adults feed on the same prey as larvae. **Habitat/Range:** Found in sandy areas, nest holes are dug in the sand and are often aggregated. Over 1,000 species are native to North America.		females, but coloration is usually orange/yellow. They build sticky irregular mesh-type webs. Widow spiders aren't aggressive and rarely bite. They produce a neurotoxin that can cause muscle and chest pain and other symptoms in mammals. **Development:** 3 life stages: egg, spiderling, adult. Females usually produce 5-10 pear-shaped egg sacs, white/tan/gray in color, each with 150-250 eggs. Eggs hatch in the egg sac and spiderlings molt once before emerging about a month later. Newly hatched spiderlings are cannibalistic and disperse quickly by ballooning. Many spiderlings overwinter and fully mature in the following spring. About 1 year per generation. **Diet:** Polyphagous. They do not forage, insects caught in their webs are eaten at the site. After wrapping up the prey, the spider will deliver several bites and wait for the venom and digestive juices to break down the insect and then suck out the pre-digested tissue. **Habitat/Range:** Often found in dark, undisturbed areas such as abandoned rodent burrows, wood piles or corners of rooms. Native to western North America.		**Development:** 3 life stages: egg, spiderling, adult. 30-170 eggs per clutch, all released into egg sacs in spring and summer. Female spider cares for eggs until they hatch, once hatched they disperse and seek shelter or overwinter. **Diet:** Adults eat a variety of insects such as true bugs, caterpillars, and other spiders. They have incredible vision and actively hunt instead of building webs to catch prey. **Habitat/Range:** Often found on broad-leafed plants in open areas. They make hidden cocoon-like retreats to take cover and lay/protect their eggs.

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