

Field Guide to Insects and other Invertebrates of the Santa Monica Mountains

This is the start of a field guide to the invertebrate animals of the Santa Monica Mountains. It currently covers thirteen species and subspecies of insects, arachnids, and centipedes.

This field guide was developed as a set of dynamic web-pages. As dynamic web-pages are not directly compatible with this National Park Service website, the information from the field guide is presented here as an Adobe PDF file.

The content has been written in relatively simple language, to accommodate a large audience, including children. To navigate this document, one can browse the content by scrolling down, or use a web-browser search tool to look for species names or other keywords.

Invertebrates are animals without a backbone. The thirteen invertebrates currently included are:

Higher classification common name (in English)			Scientific name (in Latin)				Common name
Phylum	Class	Order	Family	Genus	Species	Subspecies	
Arthropods	Insects	Butterflies & Moths	Papilionidae	<i>Papilio</i>	<i>rutulus</i>		Western Tiger Swallowtail
Arthropods	Insects	Dragonflies & Damselflies	Libellulidae	<i>Sympetrum</i>	<i>corruptum</i>		Variiegated Meadowhawk
Arthropods	Insects	Dragonflies & Damselflies	Coenagrionidae	<i>Argia</i>	<i>vivida</i>		Vivid Dancer
Arthropods	Insects	Beetles	Coccinellidae	<i>Hippodamia</i>	<i>convergens</i>		Convergent Lady Beetle
Arthropods	Insects	Beetles	Cleridae	<i>Trichodes</i>	<i>ornatus</i>	<i>douglasianus</i>	Ornate Checkered Beetle
Arthropods	Insects	Beetles	Tenebrionidae	<i>Eleodes</i>	<i>osculans</i>		Woolly Darkling Beetle
Arthropods	Insects	Wasps, Ants, Bees, & kin	Formicidae	<i>Pogonomyrmex</i>	<i>californicus</i>		California Harvester Ant
Arthropods	Insects	Flies	Syrphidae	<i>Eupeodes</i>	<i>volucris</i>		Bird Flower Fly
Arthropods	Insects	Flies	Bombyliidae	<i>Conophorus</i>	<i>fenestratus</i>		"Cone-snout" Bee Fly
Arthropods	Insects	(True) Bugs	Lygaeidae	<i>Melanopleurus</i>	<i>belfragei</i>		Redcoat Seed Bug
Arthropods	Arachnids	Spiders	Araneidae	<i>Argiope</i>	<i>aurantia</i>		Golden Orb Weaver
Arthropods	Arachnids	Scorpions	Vaejovidae	<i>Paruroctonus</i>	<i>silvestrii</i>		California Common Scorpion
Arthropods	Centipedes	Tropical Centipedes	Scolopendriidae	<i>Scolopendra</i>	<i>polymorpha</i>		Multicolored Centipede

(continued on next page)

The animals are presented in this field guide in the order as listed above. The information for each invertebrate is accompanied by photographs of the subjects in their natural environment. For each of the animals the following information is included, if available:

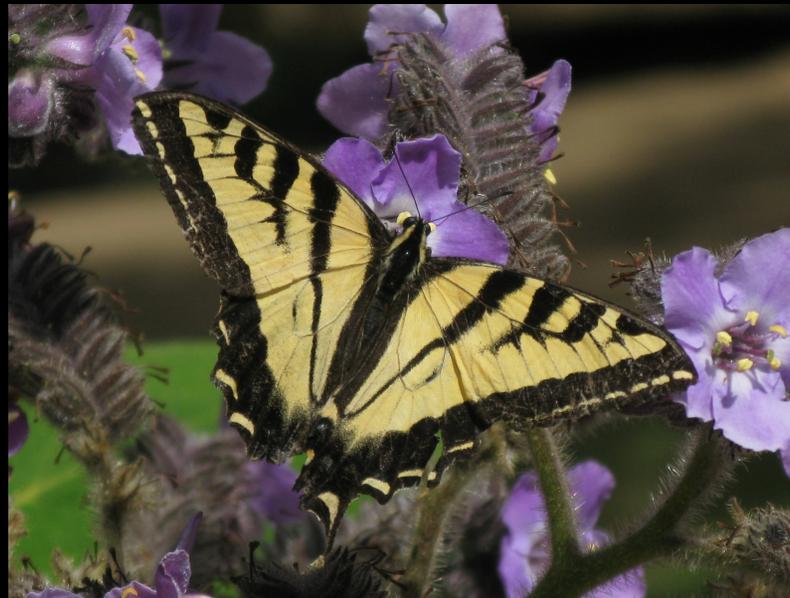
Category	Topic question	Topic description
Name(s) and systematic relationship with other organisms	What is it called ?	Common name(s) & scientific name(s)
	What kind of animal is it ?	Taxonomy: phylum to (sub)species
	Who first described it ?	Author and year of first description
	What does its name mean ?	Etymology (origin of the scientific name)
Appearance	How to recognize it ?	Photo(s) of animal in its environment
	What does it look like ?	Description of adults and immatures
	How to identify the animal ?	Field marks for adults and immatures
	Similar animals	Look-alikes, & other resembling species
	How big is it ?	Body length and other measurements
Life History	Does it undergo metamorphosis ?	Metamorphosis type
	How does it develop ?	Egg, larval, and pupal stages
	How long does it live ?	Lifespan
	How does it overwinter ?	Overwintering stage (egg, larvae, pupa, adult)
Interactions with other organisms and its environment	What does it eat ?	Food habits
	Is it a herbivore or carnivore ?	Eating habit of immatures and adults
	Who eats or harms it ?	Predators, parasites, parasitoids, & pathogens
	How does it behave ?	Behavior and related ecological facts
	When to look for it ?	Time of the year adults are active
	How does it communicate ?	Communication mechanisms
Habitat & Distribution	Where does one find it ?	Habitat(s) of adults and immatures
	What lives nearby ?	Organisms sharing its habitat(s)
	Where all does it live ?	Geographic range & map; altitude range
	Is it only found here ?	Whether they are endemic
	Is it native ?	Whether they are native or introduced
	How common is it ?	Prevalence
	Is it protected ?	Conservation status.
Interesting facts	Did you know ?	Facts & trivia

We hope that this field guide will contribute to a better understanding, and appreciation, of the smaller, indispensable, members of our local ecosystems.

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

Western Tiger Swallowtail

Information on the **Western Tiger Swallowtail** is listed below:



Western Tiger Swallowtail (*Papilio rutulus*) on waif Caracus Wigandia (*Wigandia urens* var. *caracasana*)

**Name(s) and
systematic
relationship
with other
organisms**

Common name

Western Tiger Swallowtail

Other common names

(Parentheses indicate a generic,
or higher level, name.)
[Square brackets indicate optional

(Swallowtail [Butterfly]).

parts of the name.]

Scientific name

Internationally accepted name (in Latin)

Papilio rutulus

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Lepidoptera	Butterflies & Moths
Family	Papilionidae	Swallowtails & Parnassians
Genus	<i>Papilio</i>	
Species	<i>rutulus</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

Lucas

In which year was the animal first described ?

1852

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

[Papilio] Rutulus var. *Arizonensis*, *Papilio Rutulus* var. *Ammoni*, *[Papilio rutulus]* ab. *hospitonina*, *Papilio rutulus* tr. f. *fannyae*, *Pterourus rutulus*, *Euphoeades rutulus*, *Papilio glaucus rutulus*.

Explanation and translation of the origins of the scientific name (= etymology)

Papilio = butterfly, tent [Latin]; *rutil(us)*, *rutuli-* = red(dish) [Latin].

[Square brackets indicate language of origin.]

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

The yellow spot inside the false eye-spot on the back of the larva is separated from the rest of the eye-spot, and the black pupil of the false eye-spot is larger than that of closely related species.

Adults

The **tiger-like yellow-and-black stripe pattern on its wings** distinguishes it from other local swallowtails.

What does the animal look like ?

Immature stages

Its eggs are green spheres. The larva is a large grass-green caterpillar that is tapered from large near the head to small near the end of its abdomen. It has blue spots on most of the segments and two brightly colored false eye-spots near the broadest part of its thorax. The eye-spots consist of a small blue spot in a black "pupil", surrounded by two tones of orange plus a blue spot, outlined in black. Its pupa is dark-brown.

Adults

One of our largest butterflies with a bright, and distinctive, light-yellow-and-black wing stripe pattern. It has the "tails" at the end of its hind-wings, like a typical swallowtail. The wings are edged with black with a row of yellow hemispheric spots near the outer border. Near the "tails" are light-blue and orange markings. The underside is similar to the upside, but, the outer edge is brown and contains two yellow stripes. The abdomen is also yellow and black striped.

What other animals resemble it?

Other local swallowtails include the **Anise Swallowtail (*Papilio zelicaon*)**, which has larger black patches at the leading edge of its forewings, near its head, and the **Giant Swallowtail (*Papilio cresphontes*)**, which is mostly black with a broad yellow bar across the forewings and another connecting yellow band near the outline of the hindwings, plus a yellow spot on each "tail".

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means "approximately equal to"

Female

90.0 mm to 110 mm ≈ 3.54 inch to 4.33 inch

Male

90.0 mm to 110 mm ≈ 3.54 inch to 4.33 inch

Life history**Metamorphosis type**

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

Western Tiger Swallowtails can have up to three broods per year. Their green, shiny, spherical eggs are laid singly, on the undersides of food plant leaves. The freshly hatched caterpillars, resembling bird droppings, emerge about four days later. The caterpillars molt five times, eventually turning bright green, with a pair of large yellow eyespots with black and blue pupils, and reaching a length of up to five (5) cm (two (2) inches). The caterpillars feed on the leaves of their food plant. In summer, the butterfly can emerge as little as fifteen (15) days after the caterpillar pupated, but when the caterpillar pupates in the fall, the butterfly will not emerge until spring. The chrysalis is green in summer and dark brown in winter, and looks like a piece of wood. Butterflies emerge from winter chrysalides in late winter or early spring.

How long does it live ?

The total lifespan of a swallowtail is roughly a year. Their eggs hatch in about a week to ten (10) days. Their aggregate caterpillar stages take about two to three weeks until pupation. They remain a chrysalis for one and a half (1.5) to three (3) weeks in the summer, and several months when overwintering. Adults only live a few weeks; up to a month and a half in

captivity.

In what life stage does it typically overwinter ?

Pupa

Interactions with other organisms and its environment

What does it eat ?

Local larval food plants include California Sycamore (*Platanus racemosa*), Willows (*Salix*), and Cottonwood (*Populus*). Also used are: Alder (*Alnus*), Ash (*Fraxinus*), Birch (*Betula*), Poplars and Aspen (*Populus*), Elm (*Ulmus*), Cherry (*Prunus*), Pacific Blackberry (*Rubus ursinus*), and Apple (*Malus malus*). Adults nectar from many flowers, including thistles, Woolly Blue Curls (*Trichostema lanatum*), Abelia, California buckeye (*Aesculus californica*), Zinnia, Yerba Santa (*Eriodictyon* spp.), Milkweed (*Asclepias* spp.), Dogbane (*Apocynum* spp.), Lilies (*Lilium* spp.), and Coyote Mint (*Monardella villosa*).

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Herbivore

Adults

Herbivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Predators of Tiger Swallowtails include certain birds, insectivore mammals, mantids, and large spiders. Parasitoid wasps lay their eggs on a caterpillar as it is spinning its last silk threads before it pupates.

Ecology and behavior

Males patrol canyons, hilltops, and roadsides with trees, looking for receptive females. They often congregate, along with other butterflies, at pools and along streams and rivers. There they drink from the water and mud, extracting minerals as well as moisture. This behavior is called "puddling."

During which months are the adults active ?

Overall period of activity

1 to 12

1 = January, 2 = February, ...,
12 = December

Peak period of activity

2 to 9

How does it communicate and interact with other organisms ?

Like all butterflies, swallowtails mainly use scent and sight for communication. Butterflies use color patterns to signal their sex or species to each other. Certain butterflies use ultraviolet reflectance or absorbance as a private communication channel unavailable to predators. With this secure line, they are able to facilitate mating behavior and sex recognition. Some butterflies use chemical pheromones to attract the opposite sex or to signal species identity in courtship. Female swallowtails lay eggs on their host only when they detect specific chemicals through their foreleg chemosensilla while drumming on the leaf surface.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

Caterpillars are usually found on host-plant leaves. They rest on silken mats in shelters of curled leaves.

Habitat of adults

Found in a variety of habitats, including forest, riparian [= natural watercourse banks], and urban parks and gardens. They are mostly found near water and trees.

Habitat cohabitants

With which other organisms does it share its habitat ?

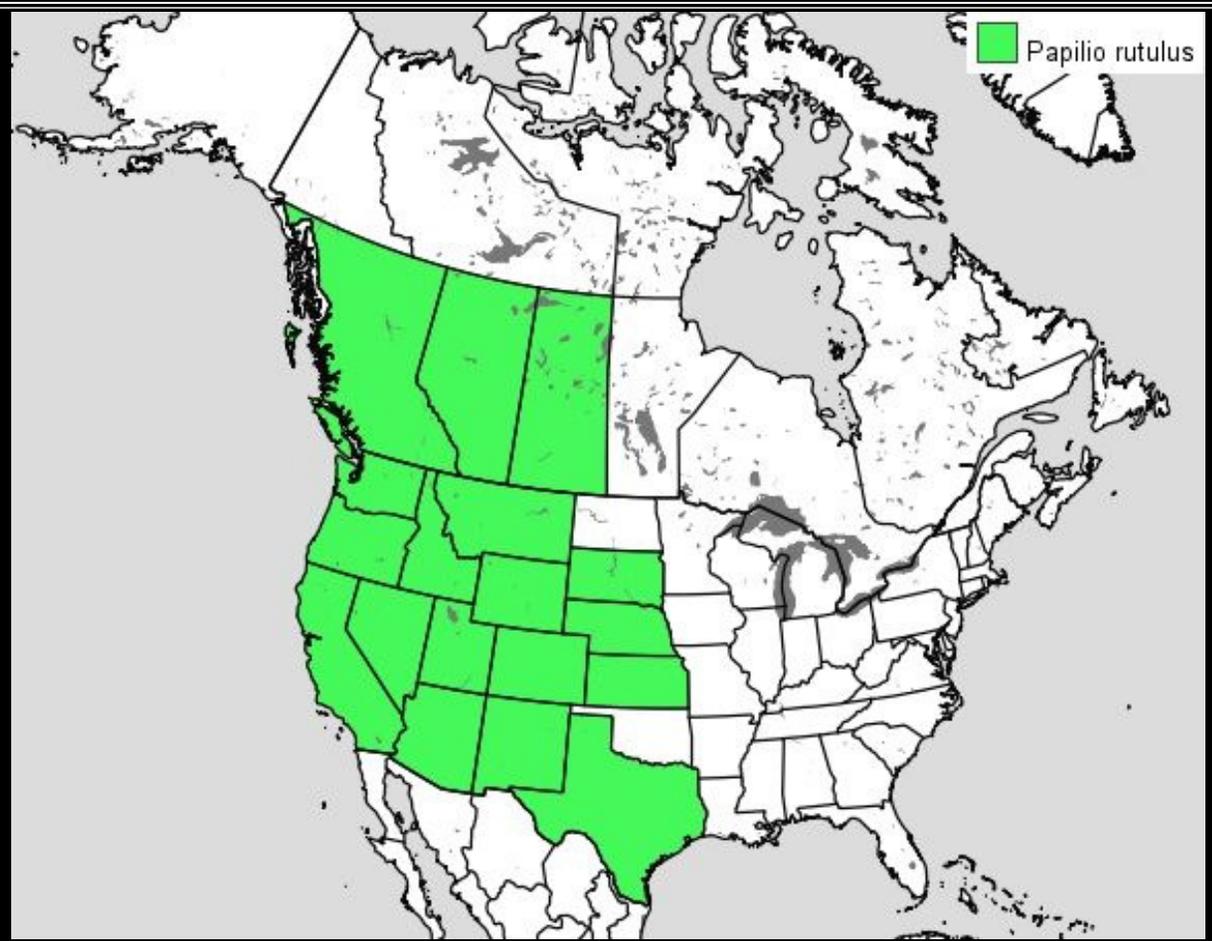
Besides birds there are few animals that share their high-flying arboreal habitat. When they occasionally visit flowers, they share them with typical diurnal [= active during the day] floral visitors like bees, beetles, and other butterflies.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Western United States, Southwestern Canada, and extreme northwestern Mexico (Baja).

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately"

From 0 m to 3,000 m ~ = 0 feet to 10,000 feet.

equal to"

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

It is relatively common in coastal California, but it is an active butterfly that rarely rests, and often flies well above eye-level.

Is the species protected by law or listed as special status ?

(rare, threatened, endangered)

No

Interesting Facts

Trivia and other information

Trivia

The large, green pre-pupal Western Tiger Swallowtail caterpillars have a realistic eyespot on each side of the thickened end of their abdomen. They also have a colored forked organ, called osmeterium, behind the head on their back. This foul-smelling organ can turn inside out. Using their osmeterium, plus resembling a small green snake, may deter predators.

Notes

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of the Santa Monica Mountains

Variegated Meadowhawk

Information on the **Variegated Meadowhawk** is listed below:



Variegated Meadowhawk (*Sympetrum corruptum*) resting

Name(s) and
systematic
relationship
with other
organisms

Common name

Variegated Meadowhawk

Other common names

(Parentheses indicate a generic, or higher level, name.)
[Square brackets indicate optional parts of the name.]

(Dragonfly).

Scientific name

Internationally accepted name (in Latin)

Sympetrum corruptum**Taxonomic hierarchy**

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Odonata	Dragonflies & Damselflies
Family	Libellulidae	Skimmers
Genus	<i>Sympetrum</i>	
Species	<i>corruptum</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

(Hagen)

In which year was the animal first described ?

1861

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Mesothemis corrupta, *Tarnetrum corruptum*.**Explanation and translation of the origins of the scientific name (= etymology)**

[Square brackets indicate language of origin.]

Sympetrum = "with rock" [Latin]; corrupt = marred, spoiled [Latin].

What does it look like ?

Note: "Immature stages" include egg, larva, and

What identification features to look for ?

(Field marks and other

Immature stages

Its lateral anal appendages being half as long as its inferiors is a key difference from similar species.

Adults

Usually two yellow spots, low on each side on the thorax. In

pupa, where applicable.

distinguishing characteristics)

younger adults, two diagonal white stripes end in these yellow spots.

What does the animal look like ?

Immature stages

Naiads [= larvae] are aquatic; that is, they live under water. They are small; up to 19 mm (3/4 inch) long. They are mottled green and brown, with a pair of stripes on top of the abdomen. Naiads of many dragonfly species have hooks and/or spines on the abdominal segments, but Variegated Meadowhawk naiads may have only one tiny, rear-facing spine on each side of the eighth abdominal segment or else no hooks or spines at all.

Adults

Small to medium-sized dragonfly with a slender abdomen. Mature males have a base color of dark brown-black. Each side of the thorax is often marked with a pair of yellow spots. The abdomen is marked with a vivid pattern of red, pink, and golden brown. The leading edges of the wings have pinkish wing veins. Mature females are marked similarly but with less red. Immature males and females are paler in color and are mottled with light green, light yellow, golden brown, and orange.

What other animals resemble it?

Wandering Gliders (*Pantala flavescens*) are dragonflies of similar size, but have different coloration patterning.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means "approximately equal to"

Female

37.0 mm to 49 mm ~ = 1.46 inch to 1.93 inch

Male

37.0 mm to 49 mm ~ = 1.46 inch to 1.93 inch

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (=

Incomplete

adult)
complete = holometabolic = egg; larva;
 pupa; imago (= adult)

Reproduction and immature Stages

After mating, the female flies with the male still attached ("flying in tandem") and lays her eggs in lakes and ponds by dipping the tip her abdomen on the surface of the water a few times before repeating this a small distance further.

How long does it live ?

Adults migrate and can overwinter. Overwintering adults live much longer - in the order of several months - as compared to non-overwintering adults of other species. Dragonflies can overwinter several times as naiads (larvae).

In what life stage does it typically overwinter ?

Adults migrate

Interactions with other organisms and its environment

What does it eat ?

Adults will eat almost any soft-bodied flying insect including mosquitoes, other flies, small moths, mayflies, as well as flying ants and termites. Naiads [= larvae] feed on a wide variety of aquatic insects, such as mosquito larvae, other aquatic fly larvae, mayfly larvae, and freshwater shrimp. They will also eat tiny fish and tadpoles.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Carnivore

Adults

Carnivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Birds (especially flycatchers and small raptors), bats, robber flies, wasps, and other dragonflies predate on flying adults. Dragonfly larvae are preyed upon by frogs, fish, and spiders. Water mites in genus *Arrenurus* parasitize adult dragonflies, sometimes in relatively large numbers. Fairyflies, which are tiny parasitoid wasps in family Mymaridae, are known to travel under water to parasitize odonata (dragonfly and damselfly) eggs.

Ecology and behavior

Naiads [= larvae] wait in ambush for prey to pass by. This strategy also offers protection from other predators. Naiads emerge as adults at night. Hunting occurs from perches on rocks or bare branches. The Latin name for this genus, *Sympetrum*, means "with rock" and refers to their habit of basking on rocks to absorb heat early in the day. This species is often seen in migratory swarms traveling south in the fall.

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

1 to 12

Peak period of activity

4 to 9

How does it communicate and interact with other organisms ?

Like many other animals, dragonflies have a different visual range to humans and can see into the infrared and ultra violet (UV) spectrum. A strong UV signal has been scientifically demonstrated to promote territorial behavior, even between species with very differing coloration. Adult dragonflies communicate visually much more than most other insects. Males fight aerial duels for territory, displaying their size and speed to each other. Mating pairs probably communicate by touch, and perhaps even chemically.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

Naiads [= larvae] live in debris on the bottom of freshwater ponds and lakes.

Habitat of adults

Variegated Meadowhawks are found in many habitats. They are usually patrolling in the proximity of fresh water, like ponds and lakes. When they are not breeding or migrating, they can fly far from water and found in almost any habitat, including urbanized areas.

Habitat cohabitants

With which other organisms does it share its habitat ?

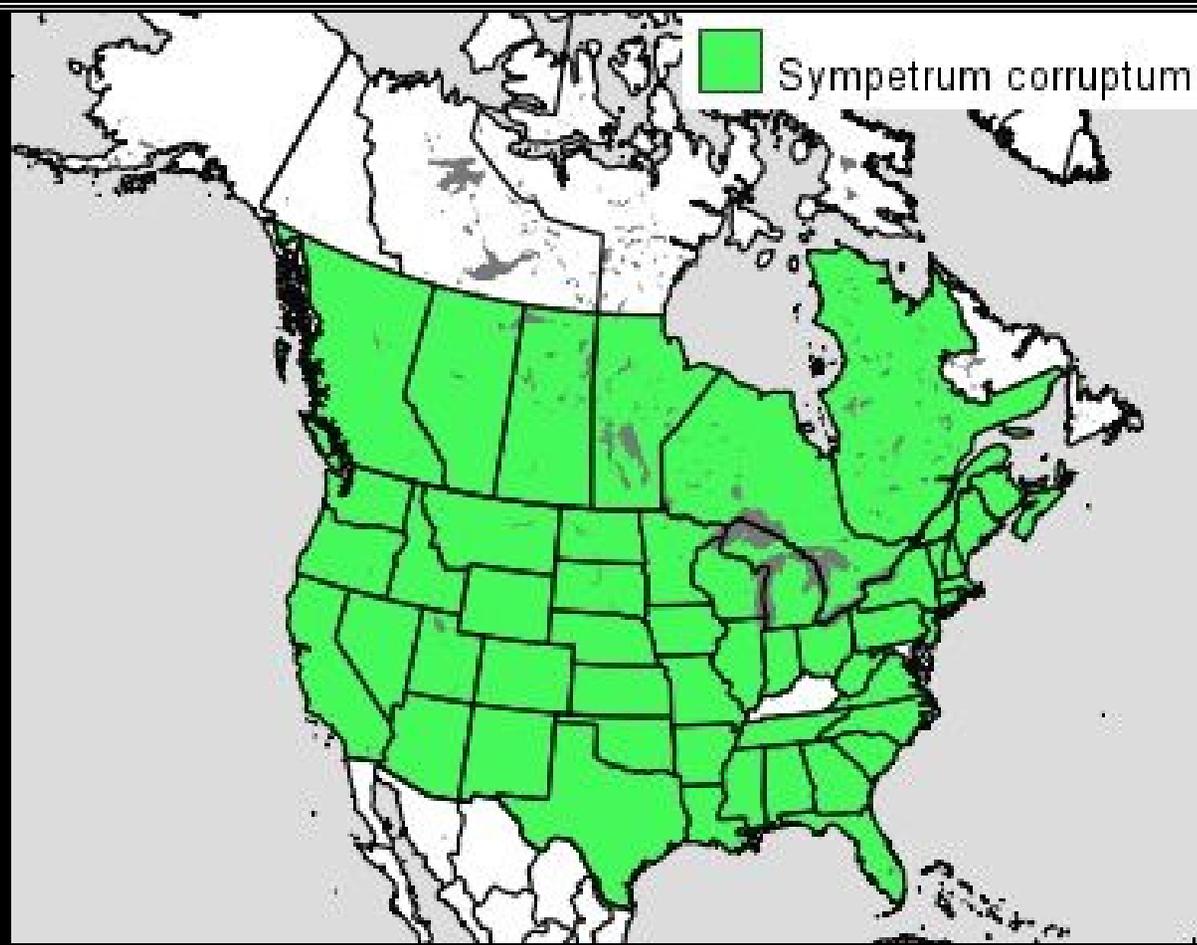
Animals that share the aerial habitat of adults include birds, midges, mosquitoes, and many other flying insects, including other dragonflies. The freshwater aquatic habitat of the immatures is shared with, among others, fishes and a myriad of aquatic invertebrates.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Southern, especially southwestern, Canada, south throughout most of the U.S., south to Honduras; plus eastern Asia.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately"

From 0 m to 3,000 m ~ = 0 feet to 10,000 feet.

	equal to"	
	Is it only found in California, or a part of California ?	No
	Has it been introduced from elsewhere? In other words, is it non-native to the Santa Monica Mountains ?	No
	How common is it?	Variegated Meadowhawks are on of the most commonly observed dragonflies of California.
	Is the species protected by law or listed as special status ? (rare, threatened, endangered)	No

Interesting Facts

Trivia and other information

Trivia

A few dragonflies, including Variegated Meadowhawks, migrate. Not much is known about their migratory behavior. Southern populations emerging during cold periods tend to migrate northward, and northern populations emerging during the warmer part of the year tend to migrate southward.

Notes

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Vivid Dancer

Information on the **Vivid Dancer** is listed below:



Vivid Dancer (*Argia vivida*) male resting on a pebble

Name(s) and systematic relationship with other organisms	Common name	Vivid Dancer		
	Other common names (Parentheses indicate a generic, or higher level, name.) [Square brackets indicate optional parts of the name.]	(Damselfly).		
	Scientific name Internationally accepted name (in Latin)	<i>Argia vivida</i>		
	Taxonomic hierarchy	Taxon	Latin name	English name

Position with respect to other organisms in the international hierarchic scientific classification system

Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Odonata	Dragonflies & Damselflies
Family	Coenagrionidae	Narrow-winged Damselflies
Genus	Argia	
Species	vivida	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

Hagen in Selys

In which year was the animal first described ?

1865

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Argia kurilis, Argia vivida vivida, Argia (Heliargia) vivida.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

archi = first, beginning, chief, superior, ruler [Greek]; vivida = feminine of vividus = alive, animated, lively, vigorous [Latin].

What does it look like ?

Note: "Immature stages" include egg, larva, and

What identification features to look for ?

Immature stages

Antennae shorter than head; gills pointed, plus details of labium [= lip], distinguish it from similar species.

pupa, where applicable.

(Field marks and other distinguishing characteristics)

Adults

A central section of the upper part of a male's humeral stripe [= black line(s) on side of thorax] narrows to a thin line.

What does the animal look like ?

Immature stages

Small, but stocky, naiad [= larva], 13 to 25 mm long, excluding gills. The gills, which protrude from the end of the abdomen, are leaf-like. Head is typically held low and abdomen quasi-cylindrical, showing about ten (10) segments. The coloration is mottled dark brown.

Adults

Mature adult males are brilliant blue, sometimes purplish-blue, with black markings. The thorax has a broad dorsal black band, as well as a black stripe on each side that starts out thick near the head and becomes a thinner line toward the rear. This line reduces to a hair-line along the third quarter of its length. Abdominal segments three (3) to six (6) have a small black rear-pointing black triangle on the side, and each of those segments has a black ending. Segment seven (7) is mostly black, and segments eight (8) to ten (10) have no black. There is also a black bar on top of the head, connecting the eyes. Young males change from whitish, via purple-gray, to tan, before becoming (purple)blue. Females have a similar pattern of black as the males, with less black on the abdominal segments. The color of females varies from whitish when young, to tan, purple-brown, light blue, or brilliant blue (resembling a male).

What other animals resemble it?

Bluets are damselflies of similar size and coloration, but can be distinguished by the black patterning on thorax and abdomen.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means

Female

29.0 mm to 38 mm ~ = 1.14 inch to 1.5 inch

Male

29.0 mm to 37 mm ~ = 1.14 inch to 1.46 inch

"approximately equal to"

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Incomplete

Reproduction and immature Stages

Male Vivid Dancers tend to perch on rocks and shorelines, awaiting females, but most pairs mate away from water. Copulation is lengthy with extended flying in tandem afterward. Tandem pairs oviposit in the late morning, usually below the waterline in the stems of aquatic plants in spring-fed streams. Single females oviposit later in the afternoon. Males patrol territories at potential breeding sites.

How long does it live ?

Adult males live three days on average.

In what life stage does it typically overwinter ?

Larva

Interactions with other organisms and its environment

What does it eat ?

Adults eat a wide variety of small soft-bodied flying insects, such as mosquitoes, mayflies, flies, winged ants and termites, and small moths. They will also pick small insects, such as aphids, from plants. Naiads eat fly larvae, including mosquito and mayfly larvae, and other aquatic insects as well as freshwater amphipods.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Carnivore

Adults

Carnivore

Predators, parasites, parasitoids, and pathogens What eats it or harms it ?

Birds, bats, robber flies, wasps, and dragonflies predate on flying adults. Dragonfly larvae are preyed upon by frogs, fish, and spiders.

	Water mites in genus <i>Arrenurus</i> parasitize adult damselflies, sometimes in relatively large numbers. Fairyflies, which are tiny parasitoid wasps in family Mymaridae, are known to travel under water to parasitize odonata (dragonfly and damselfly) eggs.				
Ecology and behavior	Usually remains close to the spring-fed stream where it emerged. Tends to perch on low vegetation, rocks, logs, or on the ground itself.				
During which months are the adults active ? 1 = January, 2 = February, ..., 12 = December	<table border="1"> <tr> <td>Overall period of activity</td> <td>2 to 11</td> </tr> <tr> <td>Peak period of activity</td> <td>4 to 9</td> </tr> </table>	Overall period of activity	2 to 11	Peak period of activity	4 to 9
Overall period of activity	2 to 11				
Peak period of activity	4 to 9				
How does it communicate and interact with other organisms ?	Damselflies use visual signals in courtship and territorial defense. Some damselflies, like Vivid Dancers, have polymorphic females, which means that females exist in more than one color-morph. The function of body coloration on mate choice in those polymorphic damselflies has been scientifically demonstrated.				

Where does one find it ?

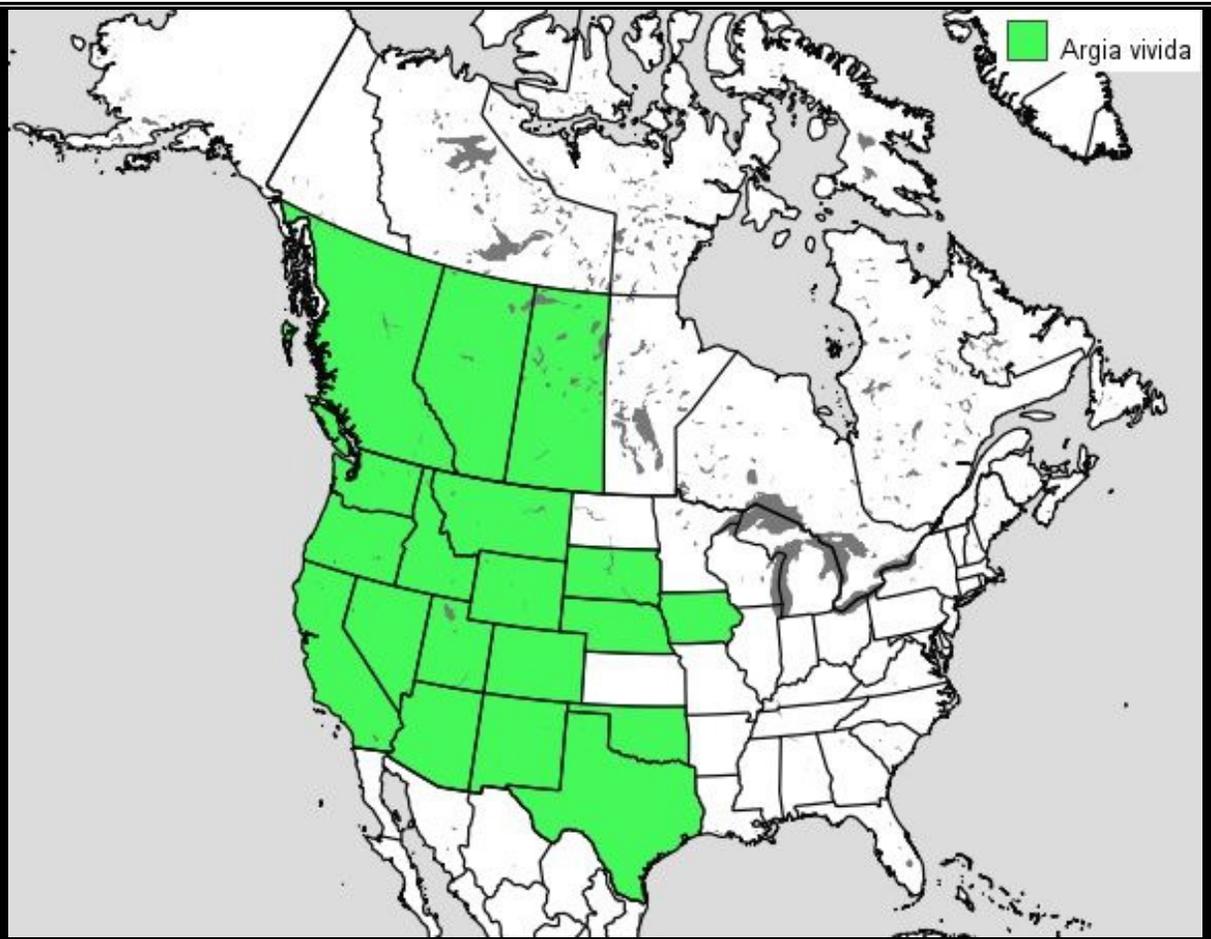
Habitat = the natural environment in which this animal lives	Habitat of immatures	In spring-fed creeks, stream, rivers, and pools.
	Habitat of adults	Vegetated spring-fed creeks, seeps, streams, rivers, pools, hot springs, and even flowing irrigation canals; usually in (semi)arid areas. Often rests in trees at night. Sedges, rocks, and nearby woody vegetation are important roost sites.
	Habitat cohabitants With which other organisms does it share its habitat ?	Animals that share the aerial habitat of adults include midges, mosquitoes, and many other flying insects, including other damselflies. The freshwater aquatic habitat of the immatures is shared with, among others, fishes and a myriad of aquatic invertebrates.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Temperate western North America, primarily from southern British Columbia and western Alberta, south to northwestern New Mexico and northern Arizona, west to Baja California.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means

From 0 m to 2,100 m ~ = 0 feet to 7,000 feet.

"approximately equal to"

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

Vivid Dancers are one of the most common damselflies of California.

Is the species protected by law or listed as special status ?

(rare, threatened, endangered)

No

Interesting Facts

Trivia and other information

Trivia

Male Vivid Dancers tend to stay within a radius of 200 meters (~ 670 feet) from where they emerged from their pupa.

Notes

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

Convergent Lady Beetle

Information on the **Convergent Lady Beetle** is listed below:



Convergent Lady Beetle (*Hippodamia convergens*) on plant stem

**Name(s) and
systematic
relationship
with other
organisms**

Common name

Convergent Lady Beetle

Other common names

(Parentheses indicate a generic, or
higher level, name.)
[Square brackets indicate optional
parts of the name.]

Convergent Lady Bug.

Scientific name

Internationally accepted name (in Latin)

Hippodamia convergens

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Coleoptera	Beetles
Family	Coccinellidae	Lady (Bird) Beetles
Genus	<i>Hippodamia</i>	
Species	<i>convergens</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

Guerin

In which year was the animal first described ?

1842

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Hippodamia juncta, *H. modesta*, *H. convergens* var. *obsoleta*, *H. praticola*.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

Hippo- = horse [Greek]. Damia = spirit; goddess of fertility [Greek]. Hippodamia is a female Greek mythological name. Convergens = converging [Latin].

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

Its larva has a regularly spaced series of spiny mounds all around each abdominal segment. The larvae are mostly gray-black with usually at least two pairs of obvious orange markings on abdominal segments I and IV.

Adults

Two oblique white lines on top of the black thorax that converge toward the abdomen.

What does the animal look like ?

Immature stages

The larva looks like a miniature dinosaur, whose shape is flattened and somewhat spindle shaped, not unlike that of an alligator. It consists of nine undivided abdominal segments, three thorax segments, and a head. The abdominal segments become smaller further away from the head, but are of approximately the same length. The three thorax segments are longer, especially the one next to the head. This first thorax segments often has some brown-yellow coloration. Each thorax segment sports two black legs.

Adults

Convex, ovoid, shiny, dome-shaped body; slightly more elongate than characteristic for most lady beetles. Usually thirteen (13) black spots on the tan to orange-red elytra [= hardened hind wings], but specimens can have no spots, or intermediate "faded" forms with a number of spots between zero (0) and thirteen (13). Its thorax is black with a white margin and two converging oblique white lines. Its head is black with a white area near the orange-brown mouth and antennae. The antennae are short and clubbed. Their underside and legs are mostly black.

What other animals resemble it?

There are a number of local lady beetles that have red elytra with black spots, including the introduced **Seven-spot and Multicolored Asian Lady Beetles**. **Spotless Lady Beetles**, which are native to our area, resemble the (near-) spotless varieties of the Convergent Lady Beetle. The converging white lines on the prothorax and the less hemispherical form distinguish the Convergent from other lady beetles.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches);
"~=" means "approximately equal to"

Female

4.2 mm to 7.3 mm ~ = 0.17 inch to 0.29 inch

Male

4.2 mm to 7.3 mm ~ = 0.17 inch to 0.29 inch

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

A female can lay 200 to 500 eggs during her lifetime. The 1 to 1.5 mm elongated yellow eggs are laid upright, in contiguous clusters of 15 to 30 eggs, on a leaf or stem of a plant that has prey. The blackish, flattened and elongate larvae hatch after a week and have orange spots and resemble miniature alligators. The larvae molt three times over the course of two to three weeks before pupating. The pupal stage usually lasts one week. Their orange & black pupae are usually found in sheltered locations. Females can adjust their life cycle timing to the availability of food and wait with egg laying for up to nine months.

How long does it live ?

It takes about four to seven weeks to develop from egg to adult. Adults can live for at least nine months and typically have two generations per year, with the second generation of adults overwintering.

In what life stage does it typically overwinter ?

Adult

Interactions with other organisms and its environment

What does it eat ?

Immatures, as well as adults, primarily consume aphids. Last-instar larvae, before becoming a pupa, usually eat between 40 to 75 aphids a day; adults eat less. They occasionally eat other soft-bodied arthropods, like scale insects and plant mites, and the larvae of psyllids, bugs, and beetles. Adults, in preparation for winter hibernation, will also eat pollen. Newly hatched larvae pierce their prey and suck their juice; adults chew and eat the whole animal.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures	Carnivore
Adults	Carnivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Primary predators of convergent lady beetles are birds. Damsel bugs (Nabidae) and big-eyed bugs (Geocoridae) consume convergent lady beetle eggs. The three millimeter (3 mm) long braconid wasp *Dinocampus coccinellae* is a parasitoid of this and other lady beetles. Microsporidia, which are protozoal pathogens, delay the larval development.

Ecology and behavior

Adults often overwinter in large aggregations in the mountains, under logs or ground-cover vegetation, and occasionally in buildings. They fly down to the valleys and coastal areas in the spring.

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity	1 to 12
Peak period of activity	2 to 8

How does it communicate and interact with other organisms ?

Adults rely on vision, smell, and chemical information. They are especially tuned into the pheromones and honeydew produced by aphids, to locate their prey. It is likely that lady beetle larvae also use chemical cues, but their search for prey appears more random.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

Immatures are usually found on plants that contain aphids or other prey.

Habitat of adults

A wide range of habitats, including forests, savanna / grasslands, agricultural fields, and urban yards; where aphids or other prey is present. They overwinter in montane forest areas.

Habitat cohabitants

With which other organisms does it share its habitat ?

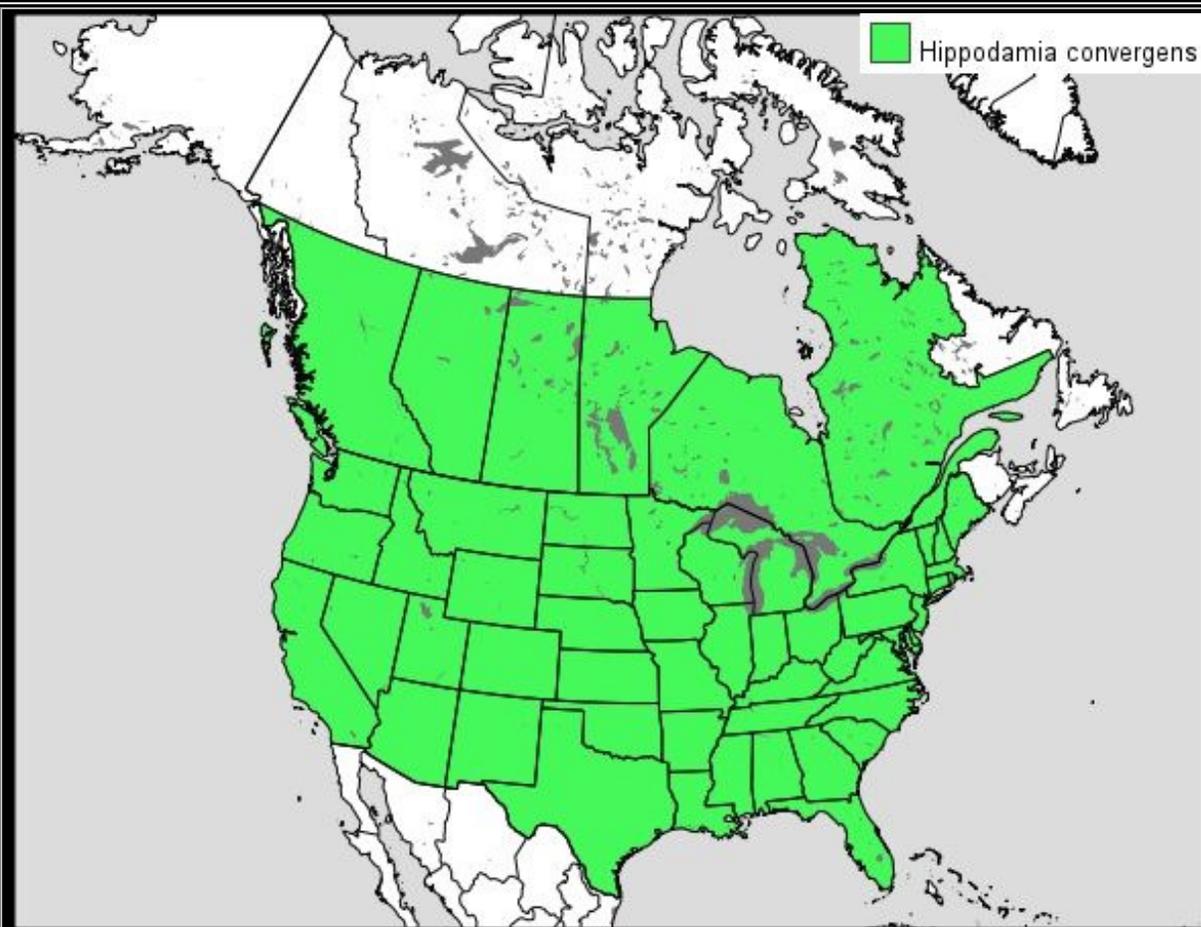
Ants, especially introduced Argentine Ants in our area, can be found patrolling aphid colonies, as they "farm" aphids for their sweet honeydew excretions. Small parasitoid wasps are attracted to aphids as potential host for their offspring.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



The southern part of Canada, plus virtually all of the United States,

south to South America.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately equal to"

From 0 m to 2,285+ m ~ = 0 feet to 7,500+ feet.

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

Relatively common; also in the periphery of urban areas.

Is the species protected by law or listed

No

**as special
status ?**

(rare, threatened,
endangered)

**Interesting
Facts**

Trivia and other
information

Trivia

Lady beetles are often erroneously called Lady Bugs. They are beetles (order Coleoptera), which have chewing mouthparts. True Bugs (order Hemiptera) have sucking mouthparts.

Notes

This is one of the most common lady beetles in the U.S., partly due to breeding and selling as biological control of aphids; especially for roses.

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

Ornate Checkered Beetle

Information on the **Ornate Checkered Beetle** is listed below:



Ornate Checkered Beetle (*Trichodes ornatus douglasianus*) on Buckwheat

Name(s) and systematic relationship with other organisms

Common name

Ornate Checkered Beetle

Other common names
(Parentheses indicate a generic, or higher level, name.)
[Square brackets indicate optional parts of the name.]

Common Checkered Beetle, Checkered Flower Beetle.

Scientific name
Internationally accepted name (in Latin)

Trichodes ornatus ssp. douglasianus

Taxonomic hierarchy
Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Coleoptera	Beetles
Family	Cleridae	Checkered Beetles
Genus	<i>Trichodes</i>	
Species	<i>ornatus</i>	
Subspecies or variety	<i>ssp. douglasianus</i>	

What is the last name of the person(s) who described the animal first ?
(Brackets indicate that the genus name has changed since it was named first.)

White

In which year was the animal first described ?

1849

Other scientific names the animal has, and had
Includes synonyms, misspellings, and other names used in the literature.

Trichodes douglasianus, *Trichodes hartwegianus*, *Trichodes tenellus*, *Trichodes obsoletus*, *Trichodes bonnevillensis*.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

trichod = hair(y) [Greek]; ornat = adorn(ed), decorate(d) [Latin]; the subspecific epithet [= subspecies name] is presumably named after entomologist John William Douglas (1814 – 1905).

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

A key field mark for the rarely encountered larvae is their location, as they are typically found in nests of bees and wasps. Their yellowish coloration and dark-brown front can assist identification.

Adults

Elongated, oval, black beetle with **bright yellow pattern on back and long brown setae [= bristles]. Antennae are knobbed.**

What does the animal look like ?

Immature stages

Larvae are elongated but stocky and flattened vertically and grow up to 13 mm long, 3 mm wide at the thorax, and less than 3 mm tall. They have nine abdominal segments, three thorax segments and a small head. The last abdominal segment bears two small, slightly curved, upward-pointing cerci [= protrusions at end of abdomen]. The head and adjacent thorax segment are dark brown, the rest mostly yellowish with some salmon color. The legs are short.

Adults

Ornate Checkered Beetles are elongated oval in shape, with the front of the head somewhat flattened. The elytra, or hardened forewings, of this subspecies are intricately decorated with a bright yellow pattern, that can vary from specimen to specimen. They are covered with long sparse brown setae [= bristles]. Their antennae are about as long as the thorax and end in a knob.

What other animals resemble it?

Longhorn Beetles (*Judolia* sp.) have long antennae without knobs. Their dorsal pattern is black with cream in color.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means "approximately equal to"

Female

7.0 mm to 15 mm ≈ 0.28 inch to 0.59 inch

Male

5.0 mm to 11. mm ≈ 0.20 inch to 0.45 inch

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

They lay their eggs in flower heads. Hatched larvae attach themselves to flower-visiting leaf-cutter bees or vespid wasps and hitch a ride to the unsuspecting host

How long does it live ?

Larvae take approximately five (5) to seventeen (17) weeks to develop, depending on the food source. When they feed exclusively on pollen, they take about three times longer to develop as compared to their usual diet of bee or wasp larvae. Adults typically live between one (1) and four (4) months.

In what life stage does it typically overwinter ?

Larva

Interactions with other organisms and its environment

What does it eat ?

The adults eat primarily pollen of composites, buckwheat (*Polygonum*), cactus (*Opuntia*), and other flowers, but can also feed on various insects. They are important pollinators for some of our native plant species. The larvae typically predate on bee and wasp larvae, but can also sustain themselves on pollen.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a

Immatures

Carnivore

variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Adults

Omnivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Little is known about who predates on checkered beetles. They are likely eaten by birds and insectivore mammals.

Ecology and behavior

Females sometimes consume the male after mating.

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

2 to 6

Peak period of activity

3 to 4

How does it communicate and interact with other organisms ?

Like most insects, they are not known to make audible sounds for communication.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

The larvae are typically found in the nests of leaf-cutter bees and vespid wasps.

Habitat of adults

The adults are often found on flowers; see "What does it eat ?" above.

Habitat cohabitants

With which other organisms does it share its habitat ?

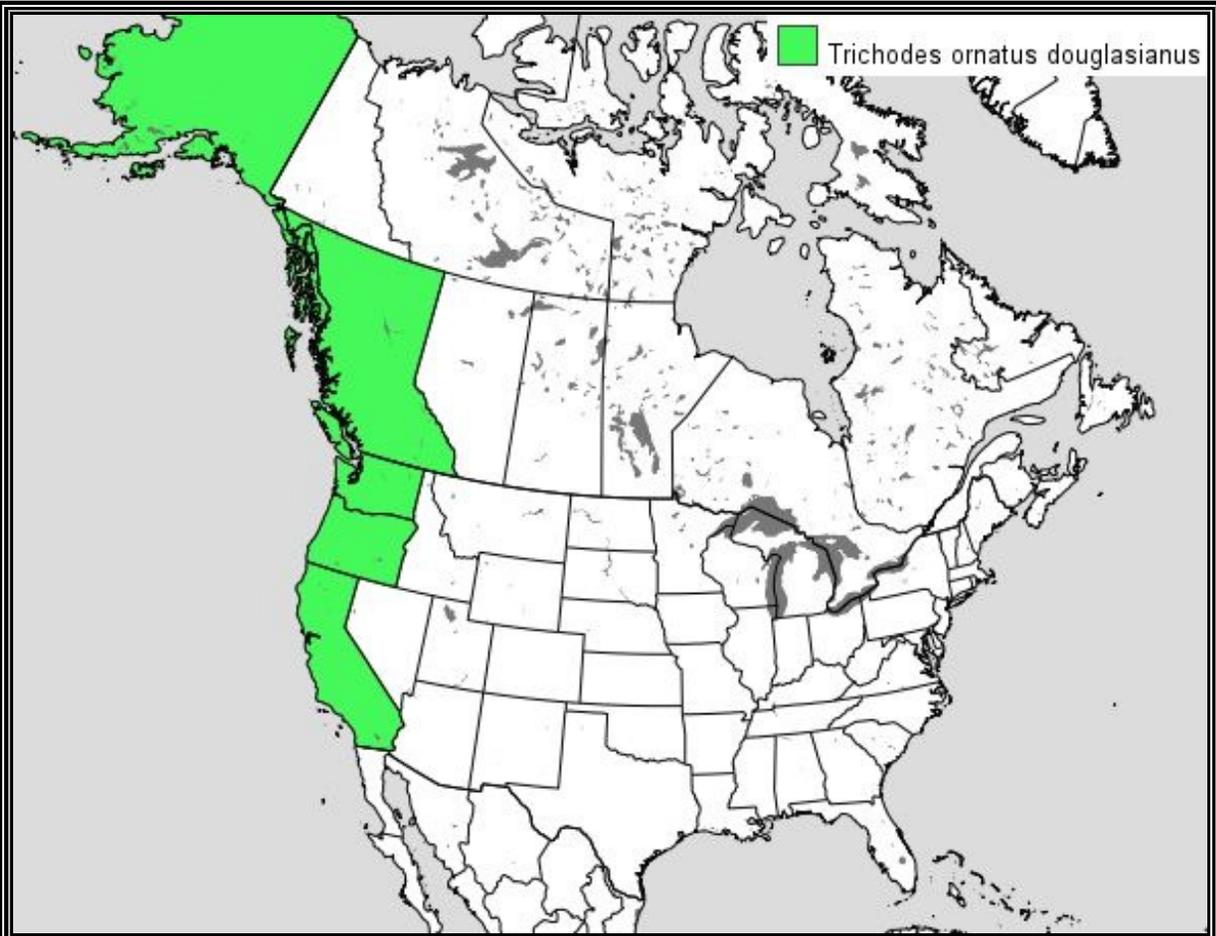
As ornate checkered beetles are found in a variety of natural habitats, they share those with many species, including their hosts (leaf-cutter bees and vespid wasps), other beetles, flies, bugs, and other flower visiting insects. Ornate checkered beetles are unlike to be found in urban backyards.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Western-most part of North America, from Mexico north to Alaska.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately equal to"

From 0 m to 3,050 m ~ = 0 feet to 10,000 feet.

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

They are somewhat common in undisturbed areas.

Is the species protected by law or listed as special status ?

(rare, threatened, endangered)

No

Interesting Facts

Trivia and other information

Trivia

Did you know that the larvae of ornate checkered beetles hitch a ride on unaware bees and wasps to take residence in their nest ?

Notes

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

Woolly Darkling Beetle

Information on the **Woolly Darkling Beetle** is listed below:



Two Woolly Darkling Beetles (*Eleodes osculans*) on a log

Name(s) and
systematic
relationship
with other
organisms

Common name

Woolly Darkling Beetle

Other common names

(Parentheses indicate a generic, or
higher level, name.)
[Square brackets indicate optional parts]

Woolly Stink Beetle, (Pinacate Beetle), (Stink Beetle), (False
Wireworm [Beetle]).

of the name.]

Scientific name

Internationally accepted name (in Latin)

Eleodes osculans

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Coleoptera	Beetles
Family	Tenebrionidae	Darkling Beetles
Genus	<i>Eleodes</i>	
Species	<i>osculans</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

(LeConte)

In which year was the animal first described ?

1851

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Eleodes (Cratidus) behri, *Cratidus (Melaneleodes) fuscopilosus*, *Eleodes (Cratidus) intermedius*, *Amphidora osculans*, *Cratidus osculans*.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

eleo- = (elaeo-) olive [Greek], -odes = like [Greek]; osculum = kiss or little mouth [Latin].

What does it look like ?

Note: "Immature

What identification features to look for ?

Immature stages

Immature stages of darkling beetles in genus *Eleodes*, and in particular of *E. osculans*, have been little studied, and no

stages" include egg, larva, and pupa, where applicable.

(Field marks and other distinguishing characteristics)

species-specific field marks are known for the Woolly Darkling Beetle.

Adults

Erect, red-brown hairs on elytra [= hardened hind-wings].

What does the animal look like ?

Immature stages

Larvae of darkling beetles in genus *Eleodes* are caterpillar-like, yellow to brown in coloration. They have thirteen segments: a head, a three-segmented thorax and a nine-segmented abdomen. They have six short legs, two per thorax segment.

Adults

These gray-black beetles have an ovoid thorax and overall ovoid body form. Their legs and antennae are shiny blackish and their upper side has somewhat sparse, relatively long orange-brown setae [= bristles], especially toward the end of the abdomen.

What other animals resemble it?

A closely related darkling beetle, *Eleodes nigropilosa*, has black setae [= bristles] instead of brown setae. There are several other darkling beetles found in the Santa Monica Mountains, but none of them have long hair on their back.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); " \approx " means "approximately equal to"

Female

12.0 mm to 16 mm \approx 0.47 inch to 0.63 inch

Male

12.0 mm to 16 mm \approx 0.47 inch to 0.63 inch

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

Immature darkling beetles are elongated, cylindrical larvae. They are yellow-brown in color and have a many segmented body, with their six legs near the head.

How long does it live ?

Adults usually live less than a year in the wild, although they can live as long as 15 years in captivity.

In what life stage does it typically overwinter ?

Egg

Interactions with other organisms and its environment

What does it eat ?

Adults mainly eat detritus [= organic decomposition material] from grasses and annual plants. Their larvae also feed on detritus.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Detrivore

Adults

Detrivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Woolly darkling beetles have relatively few predators due to their chemical defense. Some birds, like burrowing owls and loggerhead shrikes, as well as skunks and raccoons are nevertheless able to feast on darkling beetles. Grasshopper mice push the beetles with their back in the sand and start eating from the head downward.

Ecology and behavior

Mostly active at night, but also seen during the day, these flightless beetles can be found scampering on the ground, or hiding under logs or other resting places.

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

1 to 12

Peak period of activity

2 to 12

How does it communicate and interact with other organisms ?

Woolly darkling beetles are semi-social, in that they often share resting place with other woolly darkling beetles as well as other darkling beetle species in general. Although they can exude an

unpleasant chemical mixture, this is not known to be used for communication.

Where does one find it ?

Habitat
= the natural environment in which this animal lives

Habitat of immatures

Dry soil and plant litter.

Habitat of adults

Prefers open areas, including trails, in arid regions.

Habitat cohabitants

With which other organisms does it share its habitat ?

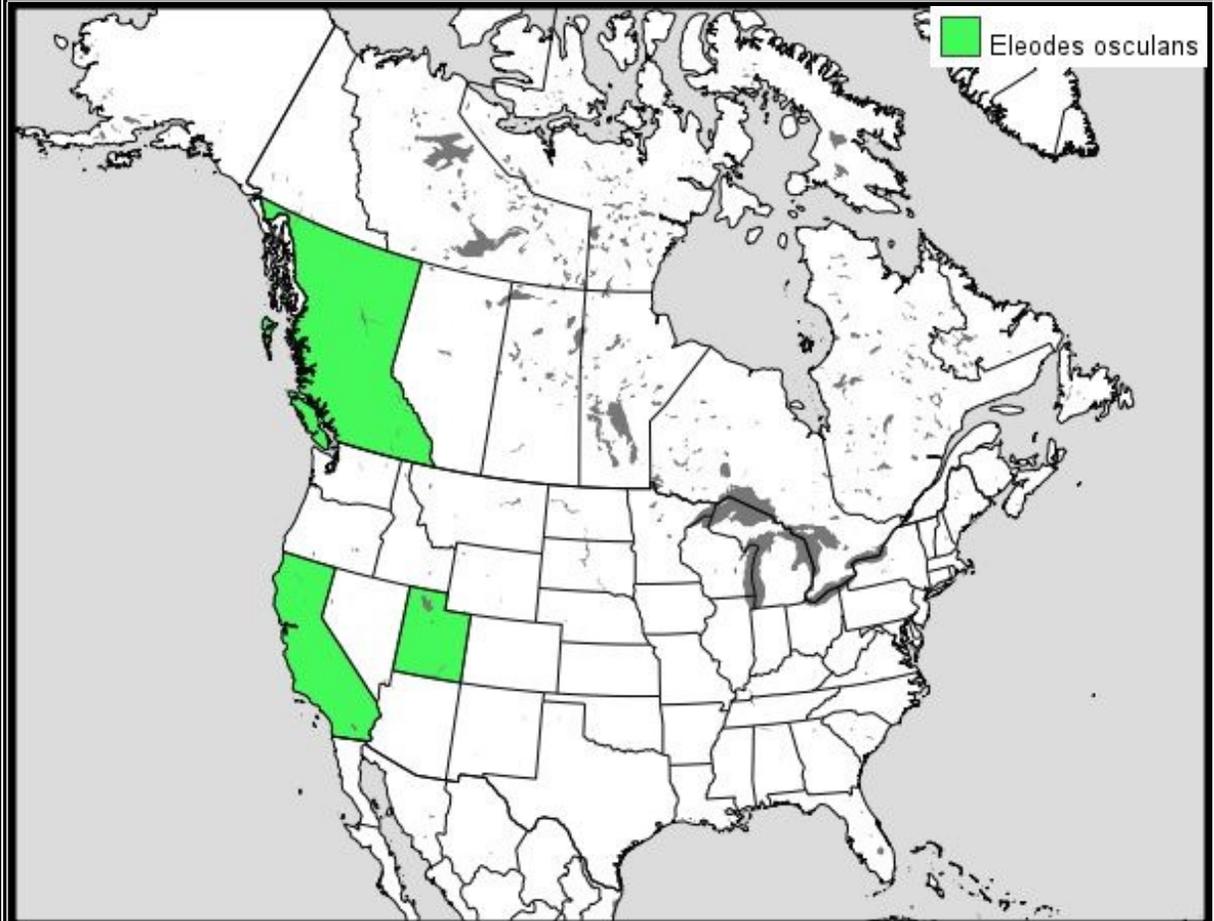
Woolly darkling beetles can be found together with other darkling beetles, sharing a resting place. When they reside under logs or rocks, they can be found along with earwigs, isopods, millipedes, and other invertebrates.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



	California, British Columbia, and Utah; and possibly regions in between..
At what altitude range can it be found ? Minimum to maximum altitudes, both in meters (m) and feet; "~=" means "approximately equal to"	From 0 m to 1,550+ m ~ = 0 feet to 5,100+ feet.
Is it only found in California, or a part of California ?	No
Has it been introduced from elsewhere? In other words, is it non-native to the Santa Monica Mountains ?	No
How common is it?	Relatively common in non-urban areas.
Is the species protected by law or listed as special	No

status ?
(rare, threatened,
endangered)

**Interesting
Facts**

Trivia and other
information

Trivia

Woolly Darkling beetles, like other darkling beetles in the genus *Eleodes*, lower their head and raise their abdomen when threatened. This unusual headstand-like position is assumed to be mimicking bombardier beetles that can shoot a hot chemical mixture from their abdomen to deter predators. Darkling beetles are not able to shoot any chemicals, but they can exude an unpleasant-smelling mixture from their joints to deter enemies. This is how they obtained their common name "Stink Beetles."

Notes

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of the Santa Monica Mountains

California Harvester Ant

Information on the **California Harvester Ant** is listed below:



Harvester Ant (*Pogonomyrmex californicus*) on dried
plant stem



Harvester Ants (*Pogonomyrmex californicus*) near nest
entrance

Name(s) and
systematic
relationship
with other

Common name

California Harvester Ant

Other common names

(Parentheses indicate a generic, or

(Harvester Ant), (Red Ant).

organisms

higher level, name.)
[Square brackets indicate optional parts of the name.]

Scientific name

Internationally accepted name (in Latin)

Pogonomyrmex californicus

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Hymenoptera	Wasps, Ants, Bees, & kin
Family	Formicidae	Ants
Genus	<i>Pogonomyrmex</i>	
Species	<i>californicus</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

Buckley

In which year was the animal first described ?

1867

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Pogonomyrmex badius estebaninus, *Pogonomyrmex californicus longinodis*, *Pogonomyrmex californicus nitratus*, *Pogonomyrmex californicus hindleyi*.

Explanation and translation of the origins of the scientific name (=

pogon = beard [Greek], myrnex = ant [Greek]; californicus = of California [Latin].

etymology)

[Square brackets indicate language of origin.]

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

Given the social structure of ant colonies, immature stages are unlikely to be encountered unaccompanied by adults. As identification of immatures is difficult, it is easier to identify the adults of the colony.

Adults

Uniform (brown-)red coloration; long, forward-turned "beard" setae [= bristles].

What does the animal look like ?

Immature stages

Ant larvae are pale-colored grub-like and lack eyes and legs. They are not easy to distinguish from each other. They are however raised by adults in the colony and identification of the adults is less complicated. Harvester ant larvae have no anchor-tipped hairs on their abdomen, and have two large, coarse teeth in the middle of their relatively stout mandibles.

Adults

Fairly large, broad head with pronounced mandibles and somewhat large eyes; thorax widest near head, followed by more rectangular part; relatively slender, elongated body; covered with sparse white hairs; slender petiole ("waist") with 2 "nodes ("humps"); ovoid abdomen. Note that more eastern forms, that live further away from the coast tend to have a dark abdomen, among other differences.

What other animals resemble it?

There are quite a few ant species in the Santa Monica Mountains, including the common smaller blackish **Argentine Ants**. The all-reddish color and "beard" sets the California Harvester Ant apart.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches);

Female

5.0 mm to 7 mm ~ = 0.20 inch to 0.28 inch

Male

4.0 mm to 6 mm ~ = 0.16 inch to 0.24 inch

"~=" means "approximately equal to"

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

Eggs are laid by the queen, typically on or near a seed stock, and tended by female workers. Female workers also feed the larvae that hatch from the eggs. The final larval form pupates, and adults emerge. Some adults are winged for leaving the colony, finding a mate, and fertilized females are ready to start a new colony.

How long does it live ?

Queen harvester ants can live up to twenty (20) years and can produce 10,000 offspring during her lifetime.

In what life stage does it typically overwinter ?

adult (in diapause)

Interactions with other organisms and its environment

What does it eat ?

They primarily harvest seeds, from *Phacelia* and many other plants, as food source. They also scavenge for dead arthropods and other animal remains. Their feeding range is usually three (3) to five (5) meters (nine (9) to fifteen (15) feet) from the nest, but can extend their range to 39 meters (130 feet).

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Omnivore

Adults

Omnivore

Predators, parasites, parasitoids, and pathogens What eats it or harms it ?

Horned Lizards (*Phrynosoma* spp.) are their primary predator, along with spiders and antlions. Argentine Ants (*Linepithema humile*) fight

with, and displace, harvester ants. Parasitic nematodes, like *Steinernema carpocapsae* and *Skrjabinoptera phrynosoma* use harvester ants as host.

Ecology and behavior

Ants are one of the few insect groups with a well-defined social structure. All active participant adults are females. Only the queen is fertile and produces eggs. Males are only produced for mating after winged dispersal. The underground nests of Harvester Ants typically contains about 2000 individuals. Occasionally they form a colony with more than one cooperative queen. This phenomenon is called pleometrosis.

During which months are the adults active ?
1 = January, 2 = February, ..., 12 = December

Overall period of activity

1 to 12

Peak period of activity

2 to 11

How does it communicate and interact with other organisms ?

Ants in general have relatively poor vision, and their main means of communication is chemical. They exchange relatively complex chemical information with each other by touching their antennae.

Where does one find it ?

Habitat
= the natural environment in which this animal lives

Habitat of immatures

Immature stages are tended by female adults in their underground nests.

Habitat of adults

Found in many habitats, from arid, desert-like to grassland and coastal sage-scrub. Found on trails and other open, warm, sandy areas suitable for nesting.

Habitat cohabitants
With which other organisms does it share its habitat ?

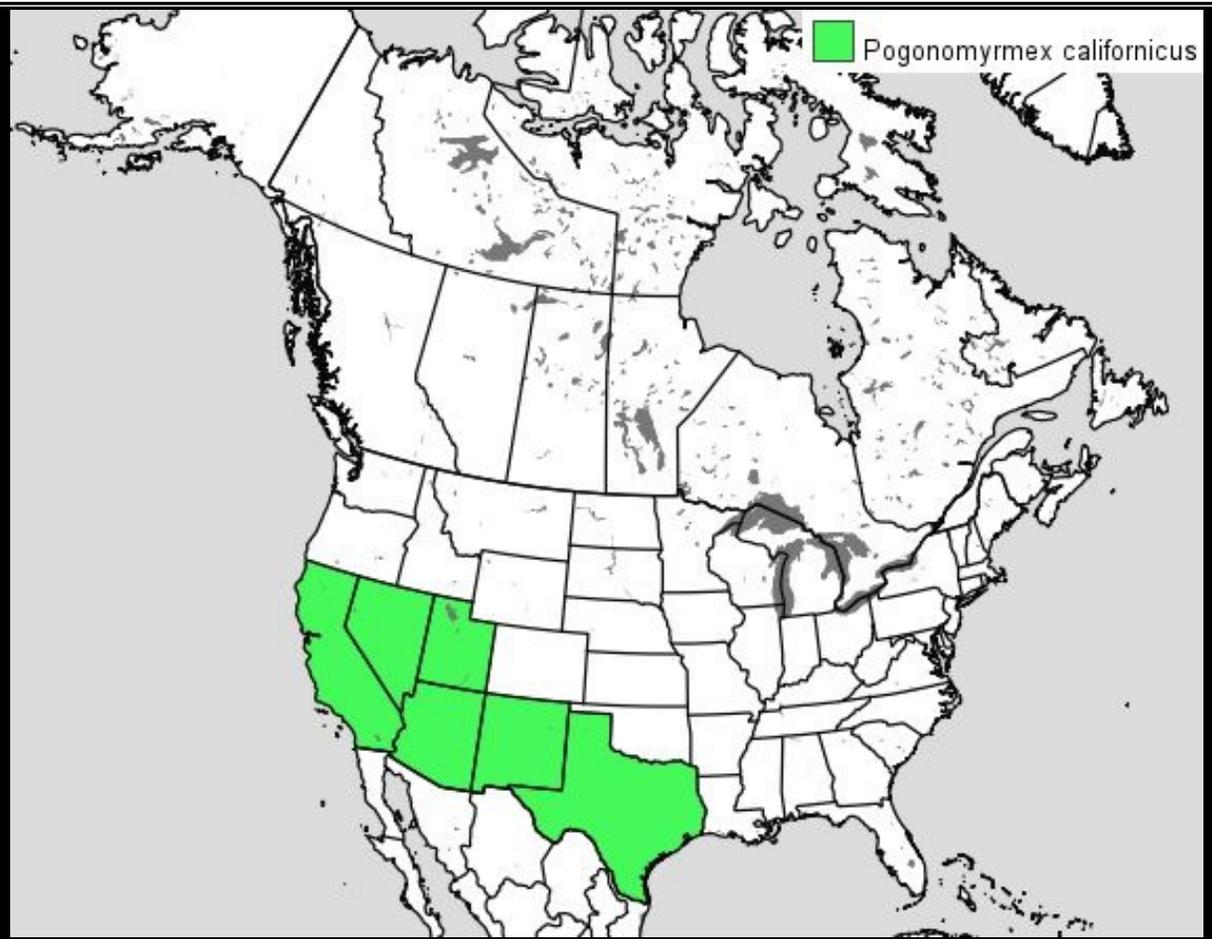
They share their sandy terrestrial habitat with, among others, ground-dwelling beetles, bristletails, bee flies, grasshoppers, and other ants.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Western Texas, southern New Mexico, southern Utah, Arizona, western Nevada, southern California. Mexico: Baja California, Sonora, Chihuahua.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means

From 0 m to 1,900 m ~ = 0 feet to 6,300 feet.

"approximately equal to"

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

Found localized, sometimes in abundance, but overall declining in numbers, mainly due to competition by Argentine Ants.

Is the species protected by law or listed as special status ?

(rare, threatened, endangered)

No

Interesting Facts

Trivia and other information

Trivia

Their nest has only one opening, which is usually surrounded by a circular mound of excavated sand and discarded seed bracts.

Notes

California Harvester Ants mostly forage during the warmer parts of the day and can withstand soil temperatures of 50 degrees Celsius (122 degrees Fahrenheit).

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

Bird Flower Fly

Information on the **Bird Flower Fly** is listed below:



Bird Hover Fly (*Eupeodes volucris*) on Star-Lily
(*Toxicoscordion fremontii*)



Bird Hover Fly (*Eupeodes volucris*) on Star-Lily
(*Toxicoscordion fremontii*) lateral view

**Name(s) and
systematic
relationship**

Common name

Other common names

Bird Flower Fly

Bird Hover Fly.

with other organisms

(Parentheses indicate a generic, or higher level, name.)
 [Square brackets indicate optional parts of the name.]

Scientific name

Internationally accepted name (in Latin)

Eupeodes volucris

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Diptera	Flies
Family	Syrphidae	Flower Flies
Genus	<i>Eupeodes</i>	
Species	<i>volucris</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

Osten Sacken

In which year was the animal first described ?

1877

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Syrphus perpallidus, *Eupeodes braggii*, *Eupeodes weldoni*, *Posthonia longipenis*.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

eu = good, well [Greek], peode = people(?) [Greek]; volucr = flying, winged, swift [Latin].

What does it look like ?**What****Immature**

Larva (light)**brown without whitish line along back and without**

Note: "Immature stages" include egg, larva, and pupa, where applicable.

identification features to look for ?
(Field marks and other distinguishing characteristics)

stages	pair of blunt fleshy projections protruding from end of last segment.
Adults	Six whitish, banana-shaped markings on abdomen; orange-brown to reddish legs. Males have a long, projecting cylindrical abdomen end, that is bluntly rounded.

What does the animal look like ?

Immature stages	The whitish, less than 1 mm (0.04") long, eggs resemble slightly tapered rice grains with a network of ridges. Their incubation period ranges from three (3) to eleven (11) days. Newly-hatched larvae are yellow-gray, blind and legless. They eat voraciously, go through three instars, and become fully grown (about 1 cm (0.4") long) in 11 to 33 days. Their color varies from pale (yellow)green to salmon or green-orange. Their body has three faint whitish stripes, and is wrinkled, showing its segments and segmental spines. The terminal end of the body is somewhat flattened, truncate, and tapering.
Adults	Abdomen black with whitish to pale-yellow banana-shaped markings, followed by thin banding; thorax coppery-black with white fuzz; face whitish, with females having blackish marks around antennae base; eyes dark red-brown; legs mostly orange-brown; wings transparent. Female with underside of abdominal segments four and five yellow-orange.

What other animals resemble it?

There are several flower flies that have similar abdominal markings. ***Scaeva pyrastris*** looks similar but bigger in size: 11 to 16 mm long. Other similarly patterned flower flies have yellow abdominal markings.

Length of the adult animal
Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches);

Female	6.3 mm to 9.8 mm ≈ 0.25 inch to 0.39 inch
Male	6.3 mm to 9.8 mm ≈ 0.25 inch to 0.39 inch

"~=" means
"approximately equal to"

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

They usually have multiple broods per year. The average period from egg to adult is three weeks.

How long does it live ?

Having a short developmental cycle and multiple broods per year indicates that the overall lifespan is likely short.

In what life stage does it typically overwinter ?

pupa or larva or adult

Interactions with other organisms and its environment

What does it eat ?

Larvae feed on many species of aphids. Adult hover flies feed on pollen and nectar.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Carnivore

Adults

Herbivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Hoverfly predators include birds, spiders, and wasps. The larvae of ichneumonid wasps in genus *Diplazon*, and some pteromalid wasps (Pteromalidae) are parasitoids of *Eupeodes* flower flies.

Ecology and behavior

Flower flies, or hover flies, are known for their ability to suspend themselves in mid-air with minimal movement in space. They use their wings to maintain a certain position, move away and resume a fixed hovering position again.

During which months are the

Overall period of activity

1 to 12

adults active ?

1 = January, 2 = February, ..., 12 = December

Peak period of activity

3 to 5

How does it communicate and interact with other organisms ?

No audible sounds have been recorded for bird flower flies. Adults likely rely on a combination of chemical and visual communication for finding mates.

Where does one find it ?**Habitat**

= the natural environment in which this animal lives

Habitat of immatures

Immature stages can be found on plants that host aphids.

Habitat of adults

Adults visit flowers in various families, including the sunflower family (Asteraceae), and are typically found in open areas with flowering plants nearby.

Habitat cohabitants

With which other organisms does it share its habitat ?

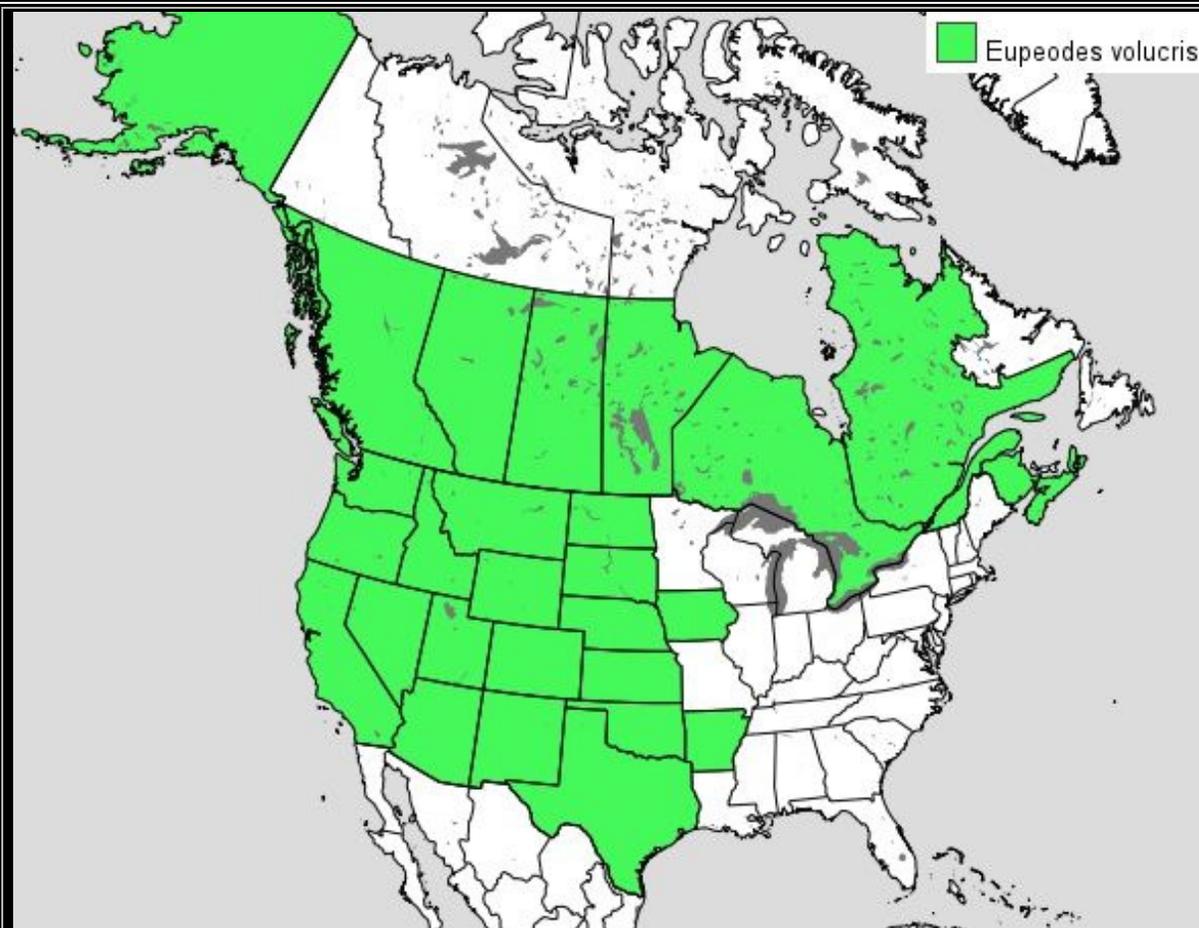
The larvae are usually found near aphids. The adults share their floral habitat with bees, butterflies, and other flower-visiting arthropods.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



CA, north to AK, and east to TX, north to KS, plus parts of southern-most Canada.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet; " \approx " means "approximately"

From 0 m to 1,200 m \approx 0 feet to 4,000+ feet.

	equal to"	
	Is it only found in California, or a part of California ?	No
	Has it been introduced from elsewhere? In other words, is it non-native to the Santa Monica Mountains ?	No
	How common is it?	Bird hover flies are among the most common flower flies of the Santa Monica Mountains area.
	Is the species protected by law or listed as special status ? (rare, threatened, endangered)	No

Interesting Facts

Trivia and other information

Trivia	Many species of flower flies are reared for biological control of aphids and scale insects.
Notes	

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

"Cone-snout" Bee Fly

Information on the **"Cone-snout" Bee Fly** is listed below:



bristle-nose **Bee Fly** (*Conophorus fenestrata*) female resting on sand

Name(s) and
systematic
relationship
with other

Common name

"Cone-snout" Bee Fly

Other common names

(Parentheses indicate a generic, or higher level, name.)
[Square brackets indicate optional parts of the name.]

organisms

Scientific name

Internationally accepted name (in Latin)

Conophorus fenestratus

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Diptera	Flies
Family	Bombyliidae	Bee Flies
Genus	<i>Conophorus</i>	
Species	<i>fenestratus</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

(Osten Sacken)

In which year was the animal first described ?

1877

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Ploas fenestrata.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

cono = cone [Greek], phore = bearer [Greek]; fenestra = window [Latin].

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

The immature stages are virtually unknown. Let us know if you think you found eggs, a larva, or a pupa.

Adults

Overall **hairy**; large conical first antennal segments, which appear as a cylindrical **forward protruding snout**; **wings heavily spotted with black**; convex scutellum [= rounded, rear

part of thorax, between the wings at rest] without a median groove or gap.

What does the animal look like ?

Immature stages

The larvae reportedly live underground. Aside from the drawing of its pupa, very little is known about its immature stages.

Adults

Covered with long dark setae [= bristles]; mottled brown and gray-black; wings distinctly patterned with black-brown: leading edge solid colored and rest of wing with mostly connected, spotted pattern; enlarged elongated first antennal segments with black antennae ends near tip; elongated abdomen; slightly humped thorax; large dark-brown eyes; relatively long and slender blackish legs; long, slender proboscis [= straw-like, piercing & sucking mouthpart].

What other animals resemble it?

There are many bee fly species in the Santa Monica Mountains which display comparable behavior. *C. fenestratus* is one of the larger ones and is closely related to *C. collini*, but larger and has a convex scutellum [= rounded, rear part of thorax, between the wings at rest] without a median groove or gap.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means "approximately equal to"

Female

10.0 mm to 11 mm ≈ 0.39 inch to 0.43 inch

Male

10.0 mm to 11 mm ≈ 0.39 inch to 0.43 inch

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)

complete = holometabolic = egg; larva; pupa; imago (= adult)

Complete

Reproduction and immature Stages

Very little is known about its immature stages. Larvae and pupae have been found to live individually underground in sandy soil. They are assumed to predate or parasitize larvae of other insects, as usual for bee flies.

How long does it live ?

Little is known about the lifespan of this bee fly genus. Adult bee flies typically have a short lifespan of one to two weeks. The pupal stage of bee flies ranges from one to four weeks. The larvae of some bee fly species can survive up to four years in diapause.

In what life stage does it typically overwinter ?

Larva?

Interactions with other organisms and its environment

What does it eat ?

Adults visit a variety of spring wildflowers, including *Cryptantha* (Popcorn Flower), *Lasthenia* (Goldfields), and *Plagiobothrys* (Popcorn Flower). The little-known larvae are likely parasitic or predatory on immature stages of other insects, as other bee fly larvae are.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Carnivore

Adults

Herbivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

The main predator of adult bee flies are birds, followed by robber flies (Asilidae), crab spiders (Thomisidae), lynx spiders (Oxyopidae), and ambush bugs (Phymatidae). Bee fly larvae and pupae are eaten by mice, shrews, and skunks. Some eulophid wasps (Eulophidae) parasitize bee fly larvae, but a principal pathogen for underground living larvae and pupae are fungal molds.

Ecology and behavior

They fly fast, keep close to the ground and alight often. When nectaring they usually rest on the flower as opposed to nectar while flying, as some other bee flies do.

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

2 to 10

Peak period of activity

3 to 5

How does it communicate and interact with other organisms ?

Some bee flies make buzzing sounds, not unlike certain bees, but no audible sounds have been documented for this pattern-wing cone-nose bee fly.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

They live solitary underground up to several feet deep.

Habitat of adults

They are usually found in sandy areas in shrub-based ecosystems in semi-arid, low humidity, and dry-summer regions.

Habitat cohabitants

With which other organisms does it share its habitat ?

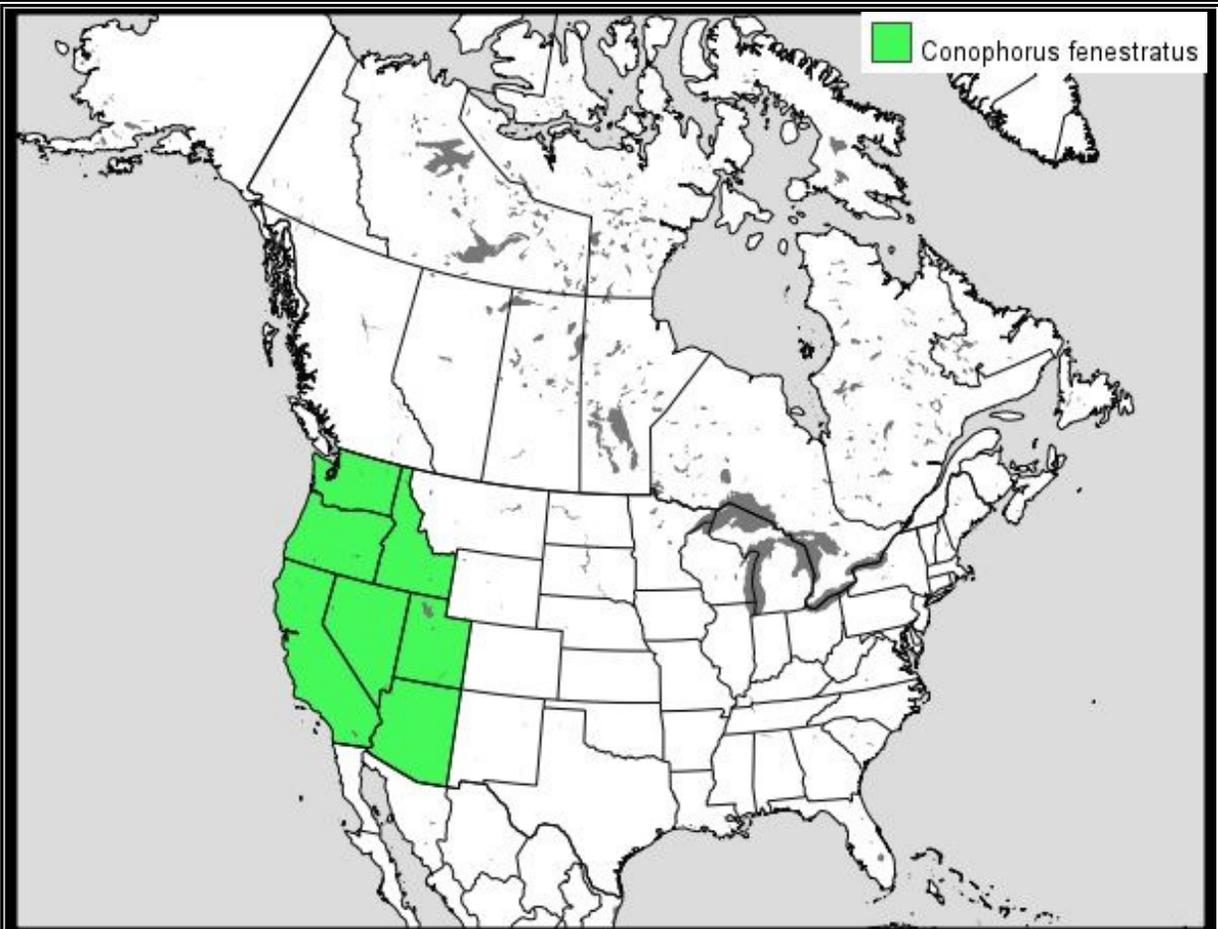
Adults can be found along hiking trails and other open areas and nectaring on spring flowers. They share their habitat with a plethora of other organisms, including butterflies, bees, and other flies.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Western-most part of the United States, east to Idaho and Utah, south to Baja, Mexico.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet; " \approx " means "approximately"

From 0 m to 1,500 m \approx 0 feet to 5,000 feet.

equal to"	
Is it only found in California, or a part of California ?	No
Has it been introduced from elsewhere? In other words, is it non-native to the Santa Monica Mountains ?	No?
How common is it?	They are relatively uncommon.
Is the species protected by law or listed as special status ? (rare, threatened, endangered)	No

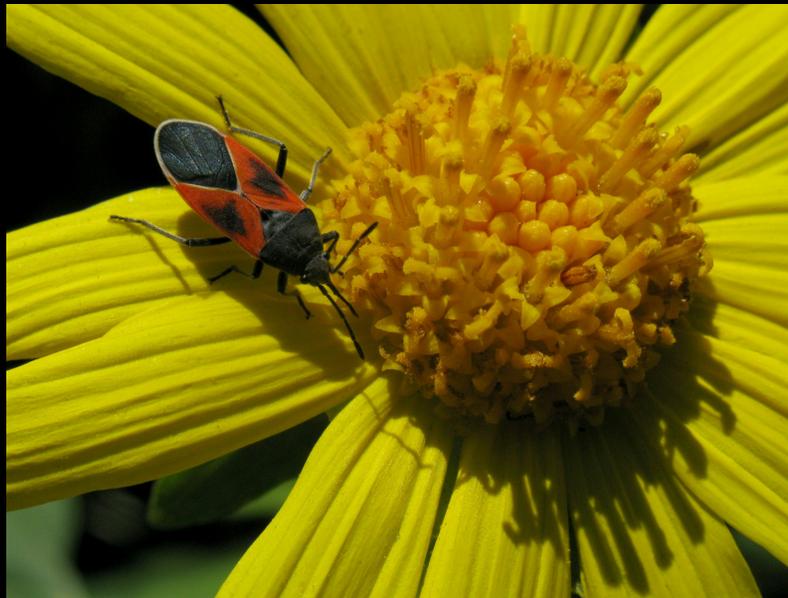
Interesting Facts
Trivia and other information

Trivia	Bee flies add an extra twist to their life cycle. Their larvae undergo an extra change, called hypermetamorphosis. The first instar larva, after emerging from its egg, is active and penetrates the host's nest, whereas subsequent larval instars morph into sedentary parasitoids on larvae of other insects.
Notes	

On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains

Redcoat Seed Bug

Information on the **Redcoat Seed Bug** is listed below:



Red and black Seed Bug (*Melanopleurus belfragei*) on Sunflower

Name(s) and
systematic
relationship
with other
organisms

Common name

Redcoat Seed Bug

Other common names

(Parentheses indicate a generic, or
higher level, name.)

[Square brackets indicate optional

(Seed bug).

parts of the name.]

Scientific name

Internationally accepted name (in Latin)

Melanopleurus belfragei

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Insecta	Insects
Order	Heteroptera	(True) Bugs
Family	Lygaeidae	Seed Bugs
Genus	<i>Melanopleurus</i>	
Species	<i>belfragei</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

(Stål)

In which year was the animal first described ?

1874

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Lygaeus (Melanopleurus) belfrageii.

Explanation and translation of the origins of the scientific name (= etymology)

Melan = black [Greek], pleur- = side, rib [Greek]; the specific epithet [= species name] is named after American entomologist Gustav Wilhelm Belfrage (1834-1882).

[Square brackets indicate language of origin.]

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

No information is available on the immature stages of Redcoat Seed Bugs.

Adults

Being overall **black, with a red diabolo-shape on the forewing** is characteristic for this species.

What does the animal look like ?

Immature stages

No information is available on the immature stages of Redcoat Seed Bugs.

Adults

Gray-black with non-transparent part of forewings red. The red of the forewings forms a diabolo, or butterfly, like shape. Some specimens have a blackish blotch on the middle of each forewing.

What other animals resemble it?

Other black and reddish colored bugs in the area include: 1) ***Neacoryphus bicrucis* (Whitecrossed Seed Bug)** which has an additional thin white cross on the forewings and a reddish bar across its thorax, as well as 2) ***Lygaeus kalmii* (Small Milkweed Bug)**, 3) ***Oncopeltus fasciatus* (Large Milkweed Bug)**, and 4) ***Scantius aegyptius* (Red Bug)** which have a different (orange)red patterning.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means "approximately equal to"

Female

7.0 mm to 10 mm ~ = 0.28 inch to 0.39 inch

Male

7.0 mm to 10 mm ~ = 0.28 inch to 0.39 inch

Life history

Metamorphosis type

incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)

Incomplete

complete = holometabolic = egg; larva; pupa; imago (= adult)

Reproduction and immature Stages

Seed bugs lay between ten (10) and one hundred (100) eggs in one clutch in crevices in the ground or on their host plant. Once hatched, the flightless nymphs typically undergo five molts before becoming a winged adult.

How long does it live ?

As they can have two generations per year, where the adults of one generation overwinter, their typical lifespan is estimated to be less than a year.

In what life stage does it typically overwinter ?

adult

Interactions with other organisms and its environment

What does it eat ?

Adults and immatures feed on *Eriogonum fasciculatum* var. *foliolosum* (California Buckwheat) and various plants in the sunflower family, including *Lepidospartum squamatum* (California Broomsage).

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Herbivore

Adults

Herbivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Predators of seed bugs include birds, rodents, and mantids. Parasites include bristle flies (Tachanidae) and unicellular parasitic flagellate protozoa in genus *Trypanosoma*.

Ecology and behavior

Immature seed bugs are often gregarious and stay in groups, mixed with adults.

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

1 to 12

Peak period of activity

7 to 10

How does it communicate and interact with other organisms ?

Their communication is predominantly chemical.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

Immatures are usually found on or near their food-plants.

Habitat of adults

Adults are usually found on or near their food-plants.

Habitat cohabitants

With which other organisms does it share its habitat ?

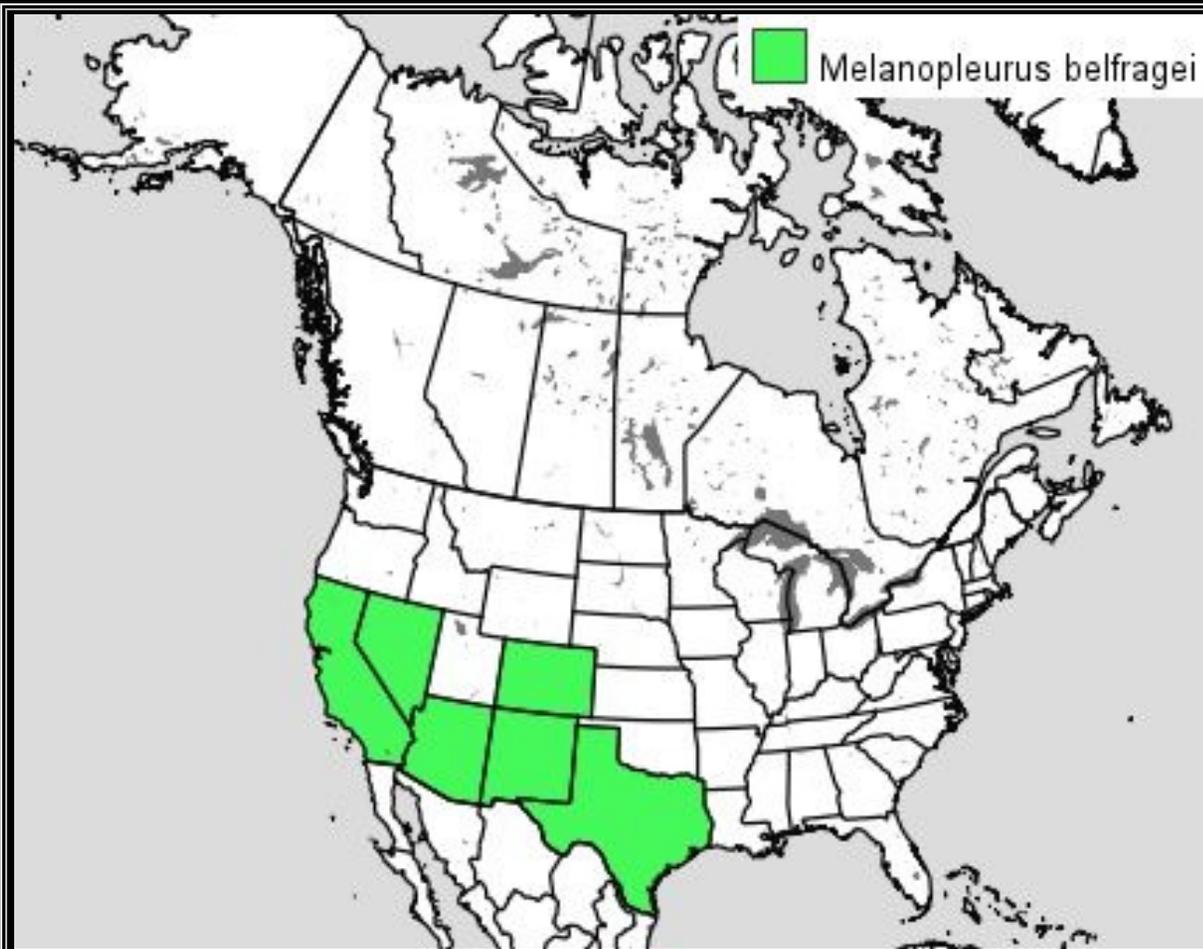
The immatures and adults share their habitat with bees, butterflies, beetles and many other plant-visiting arthropods.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



CA, west to TX, south to Mexico

At what altitude range can it be found ?

From 0 m to 1,280+ m ~ = 0 feet to 4,200+ feet.

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately equal to"

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

Redcoat Seed Bugs are not very common but can be found in a range of habitats.

Is the species protected by law or listed as special status ?

(rare, threatened, endangered)

No

Interesting

Trivia

Ovary development of adult female seed bugs only starts after their spring migration flight.

Facts

Trivia and other
information

Notes

They thereby delay their reproduction until they reached their spring habitat with host plants.

Emile Fiesler, Bioveyda, 2014

**On-line Field Guide to the Insects and other Macroinvertebrates
of the Santa Monica Mountains**

Golden Orb Weaver

Information on the **Golden Orb Weaver** is listed below:



Golden Orb Weaver (*Argiope aurantia*) female in web showing stabilimentum; dorsal view



Golden Orb Weaver (*Argiope aurantia*) female in web showing stabilimentum; ventral view

Name(s) and systematic relationship with other organisms

Common name

Golden Orb Weaver

Other common names

(Parentheses indicate a generic, or higher level, name.)
[Square brackets indicate optional parts of the name.]

Yellow Garden Spider [American Arachnological Society], Black and Yellow Argiope, Yellow Argiope, Yellow Garden Orbweaver, Writing Spider; NOTE: "Golden Orb Weaver" is the common name often used in California.

Scientific name

Internationally accepted name
(in Latin)

Argiope aurantia

Taxonomic hierarchy

Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Arachnida	Arachnids
Order	Araneae	Spiders
Family	Araneidae	Orb Weavers
Genus	<i>Argiope</i>	
Species	<i>aurantia</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?

(Brackets indicate that the genus name has changed since it was named first.)

Lucas

In which year was the animal first described ?

1833

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Argiope cophinaria, *Argiope godmani*, *Argiope personata*, *Argiope riparia*, *Epeira ambitoria*, *Epeira aurantia*, *Epeira cophinaria*, *Epeira riparia*, *Epeira sutrix*, *Miranda cophinaria*, *Nephila vestita*.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate

argiope = silver-faced [Greek]; aurantia = gold-gilded [Latin].

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

Immature Golden Orb Weavers can be recognized by their brown and beige-striped legs and overall brown and beige coloration. Like other spiderlings in genus *Argiope*, they create a stabilimentum in their web.

Adults

The abdomen usually sports **yellow and black**, as well as small humps and bumps. Female Argiopes are our **largest** web-building spiders. They usually create a **stabilimentum** in their near-vertical web (see under "What other animals resemble it ?").

What does the animal look like ?**Immature stages**

The egg-case is brownish and urn-shaped, vertically suspended with silk lines. Young spiderlings usually lack the yellow and are more beige and brown in color. The immatures camouflage themselves by positioning themselves on the zig-zag-patterned stabilimentum in their web. The function of the stabilimentum is not well understood.

Adults

Argiopes are large orb-weaving spiders. They can be found, head down, with legs held in pairs, near the middle of their large, near-vertical, circular web, as they do not build a retreat like most other web-building spiders. The Golden Orb Weaver is quite variable in appearance. The cephalothorax, which is the frontal part containing its head and thorax, is covered with silvery hairs. The usually yellow and black ovoid abdomen has humps. Their legs are typically blackish with orange-brown close to the body.

What other animals resemble it?

Two other Argiope spiders occur in our area: ***A. argentaria***, the **Silver Argiope**, with a silvery-white frontal part of the abdomen, and ***A. trifasciata***, the **Banded Argiope**, with a silvery, yellow, and black banded pattern on the abdomen. These Argiope species look similar in shape and can have a similar size. All three argiopes usually make a stabilimentum in their web.

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches);
 "~=" means "approximately equal to"

Female	14.0 mm to 28 mm ~ = 0.55 inch to 1.1 inch
Male	5.0 mm to 8 mm ~ = 0.20 inch to 0.31 inch

Life history

Metamorphosis type
incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Incomplete

Reproduction and immature Stages

Golden Orb Weavers reproduce once a year. Females create up to four 16 to 25 mm diameter, double-layer, urn-shaped egg sacs, each containing between 300 and 1400 eggs. The eggs hatch the next spring and the newborn spiderlings can disperse by ballooning. Ballooning means spinning a thread until it catches the wind and carries the spiderling away.

How long does it live ?

Their usual life span from hatchling to mature female lasts a little more than a year. In warmer climates and in captivity they may live several years.

In what life stage does it typically overwinter ?

Egg

Interactions with other organisms and its environment**What does it eat ?**

Orb Weavers are predatory and will consume any living animal they can catch in their web and overpower with their venom. These are usually insects, but occasionally other arachnids or small vertebrates, like lizards.

Eating habit
herbivore (eats plant material), **carnivore**

Immatures

Carnivore

(eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Adults

Carnivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

They are eaten by birds, lizards, and small mammals like shrews, and are sometimes captured by spider wasps like *Chalybion californicum*, the Blue Mud Dauber. Certain ichneumon wasps in the subfamily Pimplinae, as well as chloropid flies, like *Pseudogaurax signatus*, are egg parasitoids.

Ecology and behavior

When disturbed they often violently jolt their body, causing the web to vibrate. If the disturbance or threat remains, the spider will drop to the ground. See also under "Communication", "Reproduction and Immature stages", and "interesting facts".

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

1 to 12

Peak period of activity

7 to 10

How does it communicate and interact with other organisms ?

They have relatively poor vision, but are quite sensitive to vibration and air currents. Males communicate with potential mates by plucking and vibrating the females' webs.

Where does one find it ?

Habitat

= the natural environment in which this animal lives

Habitat of immatures

Egg sacs are usually placed in or near the female's web. The spiderlings often stay in the same habitat or can disperse by ballooning (see "Reproduction and Immature stages").

Habitat of adults

Golden Orb Weavers are found in a variety of habitats. They prefer open, sunny, undisturbed fields and gardens; to construct their web between tall flowers and other tall plants.

Habitat cohabitants

With which other organisms does it share its habitat ?

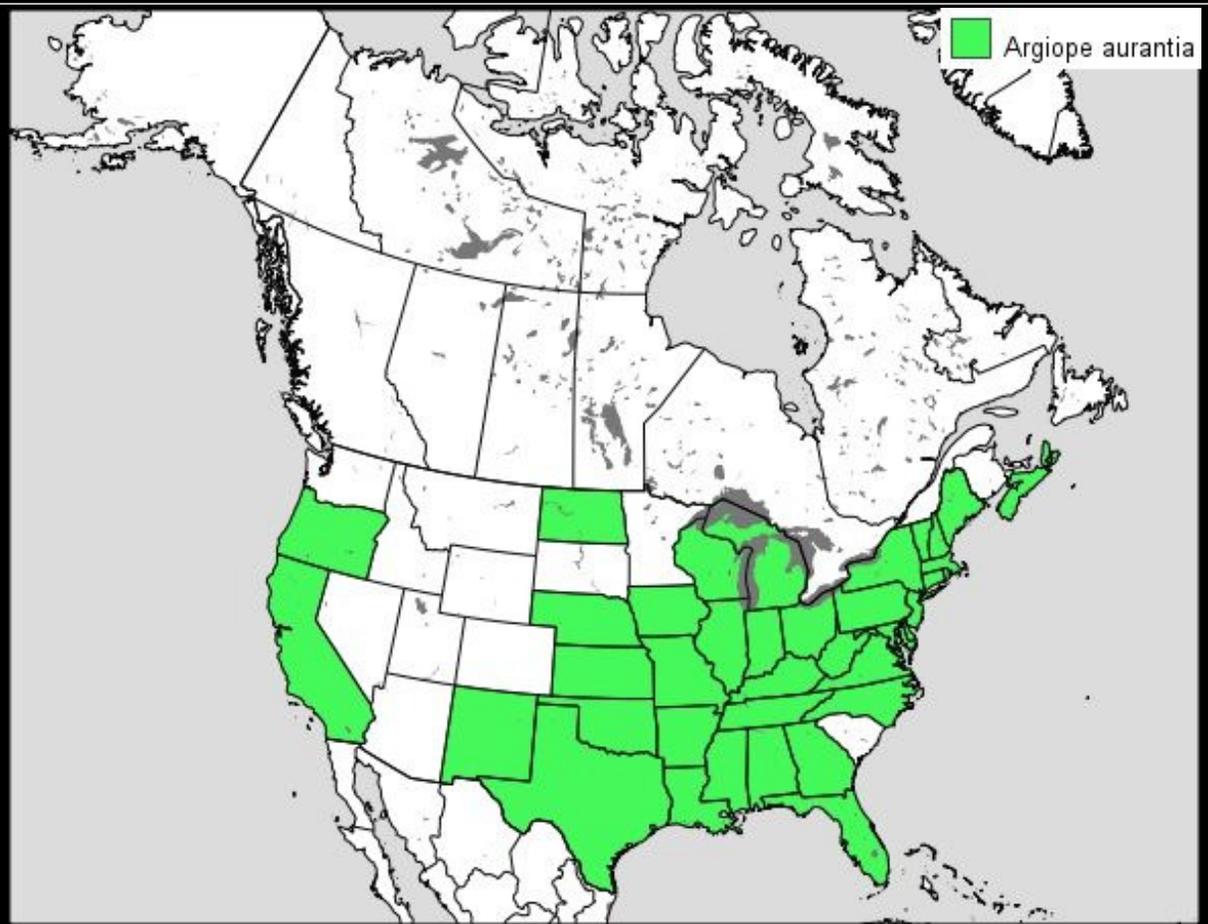
Many animals share their habitat, including prey like flies, beetles, bugs, wasps, bees, butterflies, and moths.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



From Southern Canada, south through most of the lower 48 United States, Mexico, and Central America, as far south as Costa Rica.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet; " \approx " means "approximately"

From 0 m to 1,700+ m \approx 0 feet to 5,600+ feet.

	equal to"	
	Is it only found in California, or a part of California ?	No
	Has it been introduced from elsewhere? In other words, is it non-native to the Santa Monica Mountains ?	No
	How common is it?	Locally somewhat common.
	Is the species protected by law or listed as special status ? (rare, threatened, endangered)	None

Interesting Facts

Trivia and other information

Trivia

The much smaller male wanders around in search of a female. Upon finding a female, the male builds a small web near, or sometimes in, the web of the female. The male dies during mating and is sometimes eaten by the female to boost her protein level.

Notes

The size of a spider is the length of its body, from its jaws to its spinnerets, excluding the legs.

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of the Santa Monica Mountains

California Common Scorpion

Information on the **California Common Scorpion** is listed below:



Stripe-Tailed Scorpion (*Paruroctonus silvestrii*) gravid [= egg-bearing] female



Stripe-Tailed Scorpion (*Paruroctonus silvestrii*) in defensive position

Name(s) and systematic relationship with other organisms

Common name

Other common names

(Parentheses indicate a generic, or higher level, name.)

[Square brackets indicate optional parts of the name.]

California Common Scorpion

Stripe-tailed Scorpion, Silvestri's Scorpion.

Scientific name
Internationally accepted name (in Latin)

Paruroctonus silvestrii

Taxonomic hierarchy
Position with respect to other organisms in the international hierarchic scientific classification system

Taxon	Latin name	English name
Phylum	Arthropoda	Arthropods
Class	Arachnida	Arachnids
Order	Scorpiones	Scorpions
Family	Vaejovidae	"Vaejovid Scorpions"
Genus	<i>Paruroctonus</i>	
Species	<i>silvestrii</i>	
Subspecies or variety		

What is the last name of the person(s) who described the animal first ?
(Brackets indicate that the genus name has changed since it was named first.)

(Borelli)

In which year was the animal first described ?

1909

Other scientific names the animal has, and had
Includes synonyms, misspellings, and other names used in the literature.

Vaejovis silvestrii, *Vejovis boreus*, *Vejovis (Paruroctonus) silvestrii*, *Vejovis silvestrii*.

Explanation and translation of the origins of the scientific name (= etymology)
[Square brackets indicate language of origin.]

Paruroctonus = adorned comb [Latin + Greek]; silvestri = a proper name, named after Italian Professor Filippo Silvestri (1873-1949).

What does it look like ?
Note: "Immature stages" include

What identification features to look for ?

Immature stages

They are **small** in size, but their **pedipalp chelae ("hands")** are **robust**. They have **four stripes on the underside of their metasoma ("tail")**, which are visible when its metasoma is

egg, larva, and pupa, where applicable.

(Field marks and other distinguishing characteristics)

Adults

curved upward.

They are relatively **small** in size, but their **pedipalp chelae** ("hands") are **robust**. They have **four stripes on the underside of their metasoma** ("tail"), which are visible when its metasoma is curved upward.

What does the animal look like ?

Immature stages

Immatures look like miniature versions of adults. In very young specimens, their legs, pedipalps, and chelae are semi-transparent.

Adults

Base color gray-beige to yellow/orange with dark-gray to blackish patterning on top. Top of head-region usually with dark bands radiating obliquely forward and outward. The top of the broad part of the body dark-gray, often enclosing a pair of pale oval spots. Eye region is blackish. Top of metasoma [= "tail"] usually unmarked but underside with pattern of longitudinal striping. Appendages are mostly pale to dull orange.

What other animals resemble it?

***Paruroctonus boreus*, the Northern Scorpion**, is more common in Northern California, and other parts of the western U.S., northward to Southern Canada, but have reportedly been found in the coastal mountains of Southern California. *P. boreus* looks somewhat similar to *P. silvestrii*, but has a white band at the end of the top-surface of the first six tergites [= segments of the broad part of the abdomen], and less dark patterning on the carapace [= top of the cephalothorax [= fontal segment combining head & thorax]].

Length of the adult animal

Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches);
"~=" means "approximately equal to"

Female

22.0 mm to 42+ mm ~ = 0.87 inch to 1.65+ inch

Male

20.0 mm to 39+ mm ~ = 0.79 inch to 1.54+ inch

Life history

Metamorphosis type
incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult)
complete = holometabolic = egg; larva; pupa; imago (= adult)

Incomplete

Reproduction and immature Stages

Scorpions are born alive. Vaejovid scorpions, to which the California Common Scorpion belongs, are born with an outer covering and are gestationally nourished with yolk, but also receive some nutrients from the mother through a membrane.

How long does it live ?

Little is known about the lifespan of California Common Scorpion. The minimum lifespan for a scorpion is usually at least two years. Some large scorpions can live up to 25 years in captivity.

In what life stage does it typically overwinter ?

Adult

Interactions with other organisms and its environment

What does it eat ?

They are predatory and hunt other animals. They mostly eat soft-bodied insects and arachnids.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Carnivore

Adults

Carnivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

Scorpions are eaten by many animals, including mammals, like raccoons, birds, and spiders. Some nematodes (round worms) are parasitic on scorpions.

Ecology and behavior

Scorpions display an intricate courtship called "promenade"

During which months are the adults active ?

1 = January, 2 = February, ..., 12 = December

Overall period of activity

1 to 12

Peak period of activity

4 to 9

How does it communicate and interact with other organisms ?

Males and females find each other using both pheromones and vibrational communication. Their courtship starts with a dance (see under "Ecology and behavior")

Where does one find it ?

Habitat
= the natural environment in which this animal lives

Habitat of immatures

Immatures are cared for, and often ride on the back of the adult.

Habitat of adults

Relatively common in coastal sand dunes, chaparral foothills, oak grassland, and coniferous mountain forests. Often hiding during the day in dark shelters, like under rocks or other larger debris.

Habitat cohabitants
With which other organisms does it share its habitat ?

crevice-inhabiting spiders, beetle larvae, pseudoscorpions, introduced earwigs, isopods (pillbugs and kin), and Argentine Ants, among many others.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



California, excluding the deserts, south to Baja California Norte.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately equal to"

From 0 m to 1,750+ m ~ = 0 feet to 5,800+ feet.

Is it only found in California, or a part of California ?	Endemic to California + Baja California Norte
Has it been introduced from elsewhere? In other words, is it non-native to the Santa Monica Mountains ?	No
How common is it?	Relatively common in non-urban habitat areas.
Is the species protected by law or listed as special status ? (rare, threatened, endangered)	No

Interesting Facts
Trivia and other information

Trivia	The oldest scorpion fossils date to the Silurian period (444 to 416 million years ago) when they were aquatic. They also became the first animals to come on land and walk the earth.
Notes	California Common Scorpions are docile animals that try to make themselves small and shy away upon discovery.

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of the Santa Monica Mountains

Multicolored Centipede

Information on the **Multicolored Centipede** is listed below:



Multicolored Centipede (*Scolopendra polymorpha*)
resting on sandy soil

Multicolored Centipede (*Scolopendra polymorpha*) resting
on sandy soil; detail showing head

**Name(s) and
systematic
relationship
with other
organisms**

Common name	Multicolored Centipede		
Other common names (Parentheses indicate a generic, or higher level, name.) [Square brackets indicate optional parts of the name.]	Tiger [Stripe] Centipede, Banded Desert Centipede, Common Desert Centipede, Sonoran Desert centipede.		
Scientific name Internationally accepted name (in Latin)	<i>Scolopendra polymorpha</i>		
Taxonomic hierarchy Position with respect to other organisms in the international hierarchic scientific classification system	Taxon	Latin name	English name
	Phylum	Arthropoda	Arthropods
	Class	Chilopoda	Centipedes
	Order	Scolopendromorpha	Tropical Centipedes
	Family	Scolopendridae	"Scolopendrid Centipedes"
	Genus	<i>Scolopendra</i>	
	Species	<i>polymorpha</i>	
	Subspecies or variety		
What is the last name of the person(s) who described the animal first ? (Brackets indicate that the genus name has changed since it was named first.)	Wood		
In which year was	1861		

the animal first described ?

Other scientific names the animal has, and had

Includes synonyms, misspellings, and other names used in the literature.

Scolopendra mohavea, *Scolopendra viridilimbata*, *Scolopendra mysteca*, *Scolopendra californica*, *Scolopendra leptodera*, *Scolopendra pachypus*, *Scolopendra michelbacheri*, *Scolopendra copeiana*, *Scolopendra copeiana gaumeri*, *Scolopendra polymorpha pueblae*.

Explanation and translation of the origins of the scientific name (= etymology)

[Square brackets indicate language of origin.]

scolo- = pointed item [Greek]; -pendra = to hang [Greek]; Poly- = many [Greek]; morph = form [Latin].

What does it look like ?

Note: "Immature stages" include egg, larva, and pupa, where applicable.

What identification features to look for ?

(Field marks and other distinguishing characteristics)

Immature stages

Overall appearance and shape similar to adults, coloration often greener. **Body segments have one dark lateral stripe.** Antennae have 7 or more smooth segments. Like adults, juveniles have **21 pairs of legs**; one pair per body segment.

Adults

Color somewhat variable. Each **body segment has one dark lateral stripe**, and for this reason is also known as the tiger centipede or tiger-stripe centipede. Generally this species has a darker brown, red, or orange colored head and lighter brown, tan, or orange body segments with yellow legs. Its antennae have 7 or more smooth segments. It has **21 pairs of legs**; one pair per body segment.

What does the animal look like ?

Immature stages

The color of most of the juvenile's body segments is gray-ochre(=earth color) with a distinct green hue, terminating in a black-gray line along the edge furthest away from its head. The head is often orange-brown, the legs ochre, and the 17-to-

	<p>29-segmented antennae are similarly colored as the body. The cross-section of each segment is flat and relatively broad, with one pair of legs per segment. Attached to the last, caudal, segment are two elongated appendages, called cerci, pointing backward. Juveniles are mostly crepuscular [= active during twilight].</p>
Adults	<p>The color of most of the body segments is gray-ochre [= earth color] with a greenish hue, terminating in a black-gray line along the edge furthest away from its head. The head is often orange-brown, the legs ochre, and the 17-to-29-segmented antennae are similarly colored as the body. The cross-section of each segment is flat and relatively broad, with one pair of legs per segment. Attached to the last, caudal, segment are two elongated appendages, called cerci, pointing backward.</p>

What other animals resemble it? The multicolored centipede is the largest centipede in the area, and hence not easily confused with other species. It is somewhat variable in color, but no other local species sport such coloration.

<p>Length of the adult animal Minimum to maximum; measured from tip of head to end of abdomen (in millimeters and inches); "~=" means "approximately equal to"</p>		
	Female	99.9 mm to 180 mm ~ = 3.94 inch to 7.09 inch
	Male	99.9 mm to 180 mm ~ = 3.94 inch to 7.09 inch

Life history	<p>Metamorphosis type incomplete = simple = hemimetabolic = egg; succession of adult-resembling immature instars that moult; imago (= adult) complete = holometabolic = egg; larva; pupa; imago (= adult)</p>	Incomplete
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Reproduction and immature Stages

Females and males look alike as the males have no copulatory organs. The males spin a silk receptacle in which he deposits sperm. The female collects the sperm and fertilizes her eggs with it. Eggs are laid in cavities hollowed out under rocks, in decayed wood, or at other sheltered sites. After egg-laying, the female winds around the eggs until the young have hatched, and she continues to guard them until they have molted repeatedly and dispersed.

How long does it live ?

Little is known about the lifespan of centipedes. The lifespan of a multicolored centipede is at least four years, possibly as long as eight to ten years.

In what life stage does it typically overwinter ?

juvenile & adult

Interactions with other organisms and its environment

What does it eat ?

They are predatory and hunt other animals. They eat a wide variety of invertebrates, like insects, earthworms, snails, and other myriapods, including centipedes. They occasionally eat a small vertebrate when given a chance.

Eating habit

herbivore (eats plant material), **carnivore** (eats flesh), **omnivore** (eats a variety of foods from plant, animal, or other sources), **detrivore** (decomposes; eats organic waste), etc.

Immatures

Carnivore

Adults

Carnivore

Predators, parasites, parasitoids, and pathogens

What eats it or harms it ?

The bright coloration of the multicolored centipede is an indication of it being distasteful. Centipedes do have predators, which are predominantly vertebrates like amphibians, certain snakes and lizards, raptors, and mammals like foxes, shrews, and bats. Centipedes themselves can act cannibalistic by eating other centipedes. Some mites are ectoparasites on centipedes and are typically found attached to their legs. A variety of endoparasites, which live inside their host, comprising fungi, protozoa, nematodes, and fly and wasp larvae have been found in

	centipedes.				
Ecology and behavior	Multicolored centipedes are solitary and usually display a ritualized fight when they meet. They are mostly active at night. They prefer areas with relatively high humidity but they can withstand a range of temperatures, as low as mildly freezing.				
During which months are the adults active ? 1 = January, 2 = February, ..., 12 = December	<table border="1"> <tr> <td>Overall period of activity</td> <td>1 to 12</td> </tr> <tr> <td>Peak period of activity</td> <td>1 to 4</td> </tr> </table>	Overall period of activity	1 to 12	Peak period of activity	1 to 4
Overall period of activity	1 to 12				
Peak period of activity	1 to 4				
How does it communicate and interact with other organisms ?	The terminal legs are not used for locomotion. These two long legs are capable of making stridulation sounds by moving the femur [= part of leg that is the fourth (4th) closest to the body and usually the largest] . The functionality of this sound making is not clear.				

Where does one find it ?

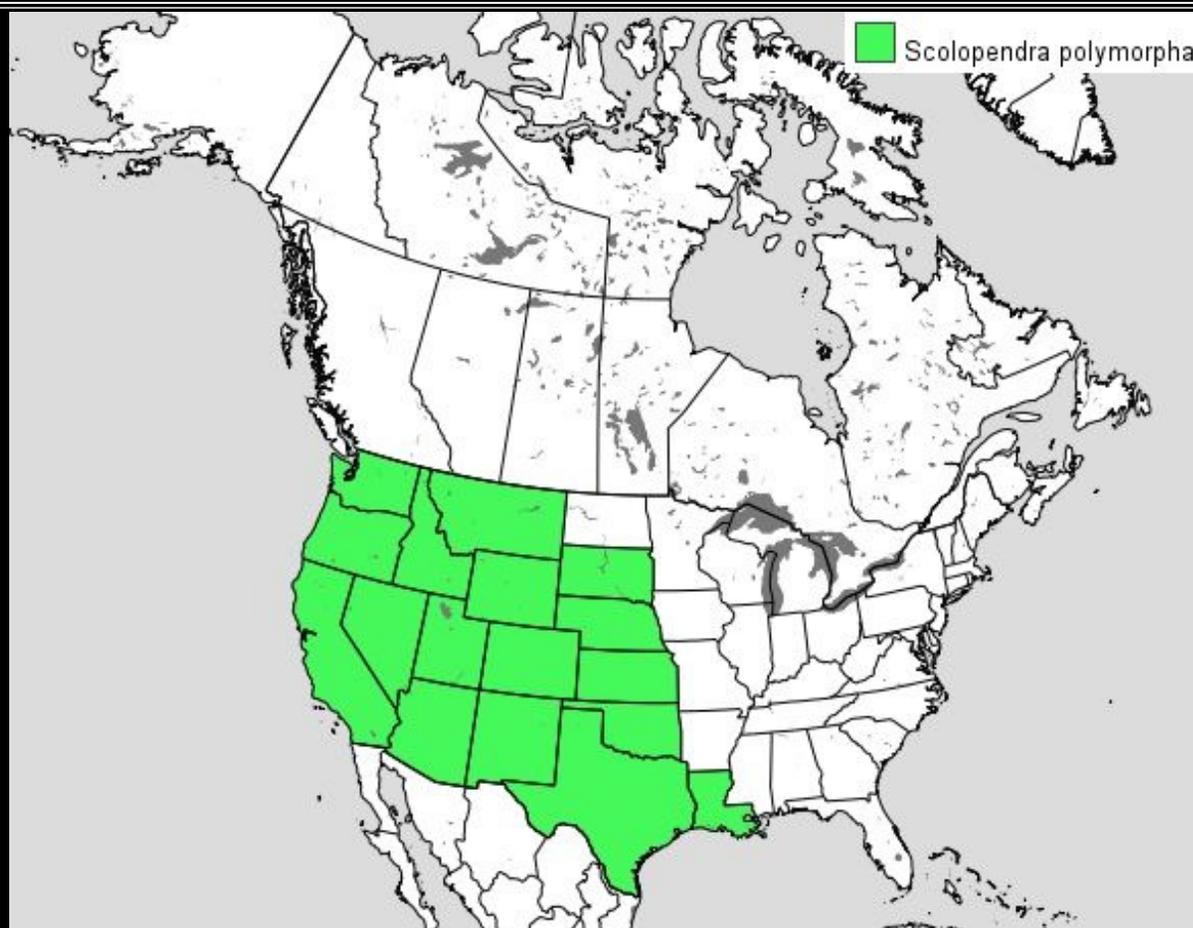
Habitat = the natural environment in which this animal lives	Habitat of immatures The female broods the eggs until the hatchlings are able to catch their own food. Immatures are therefore found in the same, or similar, habitats as adults.
	Habitat of adults They are found in dry grasslands, forests, and deserts; often under rocks, in leaf litter, or under loose bark. They can excavate a burrow; for example in a rotten log.
	Habitat cohabitants With which other organisms does it share its habitat ? During the day they are usually found under rocks. As they are ferocious predators, there are usually not many animals that share the space with them. In similar habitats one can find millipedes, isopods [= rolypolies and kin], spiders, earwigs, ants, and other insects that live under rocks.

Distribution

In which geographic regions does it live, and how common is it ?

In which geographic areas does it live ?

Note that the map only depicts the distribution in North America, north of Mexico; and that states and provinces are colored even if only one (historical) record is known from that area.



Southwestern United States, north to Oregon (and Washington) and east to Louisiana, plus Northern Mexico.

At what altitude range can it be found ?

Minimum to maximum altitudes, both in meters (m) and feet;
"~=" means "approximately"

From 0 m to 1,920+ m ~ = 0 feet to 6,300+ feet.

equal to"

Is it only found in California, or a part of California ?

No

Has it been introduced from elsewhere?

In other words, is it non-native to the Santa Monica Mountains ?

No

How common is it?

They are not rare and can be occasionally found.

Is the species protected by law or listed as special status ?

(rare, threatened, endangered)

No

Interesting Facts

Trivia and other information

Trivia

Scolopendra was one of the genera created by Carl von Linné, also known as Linnæus, in his 1758 10th edition of *Systema Naturæ*, the starting point for zoological nomenclature.

Notes

You have reach the end of the field guide.