


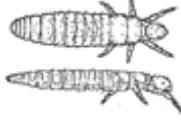














# SOME COMMONLY ENCOUNTERED ARTHROPODS KEYS







1.	The animal was not seen, but a sting or bite remains	2
	The animal was seen, or is on hand	4
2.	It caused an open lesion	3
	It caused a rash (many welts, lumps or red patches/spots)	This is not caused by an arthropod. See a medical professional for diagnosis.
	It caused a single itchy welt, or several small welts	biting flies (mosquitoes, <b>no-see-ums</b> ), ants, <b>fleas</b>
	It caused a single hard welt that continues to sting or burn for several hours	social wasps, social bees
3.	Open lesion the first symptom after localized sore	<b>spider bite</b>
	Open lesion follows bruising, swelling, flu like symptoms	bacterial infection of arthropod bite, followed by tissue death (necrosis)
4.	It has more than 10 legs	5 (centipedes, millipedes, pillbugs)
	It has 8 legs	6 (spiders, ticks, mites)
	It is difficult to count the legs because it is covered with fuzz or a shell-like covering (found only on plants)	12 (insects; Order Homoptera)
	It has six legs	13 (insects)
5.	Body flattened, approximately 20-30 long legs held out to side	<b>centipede</b>
	Body tube-shaped, approximately 50-100 short legs, held under the body	millipede
	Body flattened, oval shaped, approximately 14 legs held under the body	<b>pill bug, roly-poly (Crustacean)</b>
6.	With two distinct body parts: the abdomen and the cephalothorax (head + legs)	spiders; Class Arachnida, Order Araneae <b>7</b>
	Body apparently all one part	<b>11</b>
7.	Makes large, round, geometric web	orb weaver spider
	Body shiny black or blackish, with red ventral hourglass	<b>black widow</b>
	Body brown, straw-colored, or hairy black, without red hourglass	<b>8</b>
8.	Body small slender, with enormously long thin legs, do push-ups when disturbed, rarely walk around	<b>cellar spider</b>
	Body robust, legs not much more than twice as long as body, or very agile and actively move around, never do push-ups	<b>9</b>



9.	Rest in flowers or vegetation, pale colored	crab spiders
	Run on ground or on fences or walls, browns, blacks and/or reds in color	10
10.	Short-legged, legs not much longer than body, jump, occur on structures, often black marked with red	jumping spiders
	Long-legged, legs much longer than body, run on ground, do not jump, brown colored	wolf spiders
11.	It has long slender legs and an oval, compact body	harvestmen
	Small animals, often flattened bodies, may feed on blood	ticks
12.	Waxy, shell-like cover obscures body; legs and antennae not present; sucking mouthparts under body; found on plants	scale insects; HOMOPTERA
	Bluish white fuzz obscures body	wooly aphids; HOMOPTERA
13.	Without wings	14
	With wings	37
14.	Very small insects (<1/8 inch), with 6 or fewer abdominal segments, often indistinct; forked appendage tucked beneath abdomen; sucker-like structure on 1st abdominal segment	 springtails; COLLEMBOLA
	With 10 or more distinct abdominal segments; no forked appendage tucked beneath abdomen	15
15.	Abdomen with three long filaments at tip	16
	Abdomen with zero, one or two filaments at tip	17
16.	Body covered with tiny scales; mouthparts exposed and protruding, at least at tip	 bristletails; THYSANURA
	Body not covered with scales; mouthparts withdrawn into head with only palps exposed	 diplurans; DIPLURA
17.	Antennae not easily seen (shorter than head, or of fewer than 5 segments), or lacking	18
	Antennae prominent and longer than head, or more than 5 segments	23



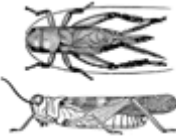


18.	Antennae lacking; front legs directed forward in their place	 proturans; PROTURA
	Antennae present	19
19.	Compound eyes absent; body cylindrical with short cerci	 zorapterans; ZORAPTERA
	Compound eyes present; body compressed, not cylindrical	20
20.	Body flattened from side to side; legs long and muscular; body hard	 fleas; SIPHONAPTERA
	Body flattened from top to bottom; legs short; body soft	21
21.	Abdomen sac-like, without distinct segments; tarsi 5-segmented	deer ked; DIPTERA
	Abdomen with distinct segments, tarsi with 1 or 2 segments	22
22.	Sucking mouthparts (hard to see); head usually pointed, much narrower than thorax, claws large	 sucking lice; ANOPLURA
	Chewing mouthparts; head usually blunt, rounded, as wide as or wider than thorax; claws small	 chewing lice; MALLOPHAGA
23.	Body constricted between thorax and abdomen	 ants and some wasps; HYMENOPTERA 24
	Thorax and abdomen broadly joined	26
24.	Body covered with dense hair	Velvet ants (actually a wingless wasp, family Mutillidae)
	Body not covered with dense hair	25
25.	Very small, black ; may be solitary or in large numbers	Argentine ants
	Brown ants, of various sizes	Most likely native ants



26.	Tarsi with five segments	27
	Tarsi with fewer than five segments	29
27.	Body elongate and rounded, stick-like	 walkingsticks; PHASMATODEA
	Body flattened from top to bottom, not stick-like	 cockroaches; BLATTODEA 28
28.	Large black and shiny	Oriental roach
	Chestnut brown and shiny	American roach
	Tan, often with darker bands across the back	German, brown-banded roach
29.	Sucking mouthparts, with jointed "beak" beneath the head	30
	Chewing mouthparts, with moveable mandibles	31
30.	Small, globular, soft-bodied insects, usually with a pair of tube-like projections near end of abdomen	 aphids; HOMOPTERA
	Usually larger insects with more or less hardened body; without tube-like projections	Nymphs (immatures) of the true bugs; HETEROPTERA
31.	With large compound eyes; hind legs large and used for jumping; generally large, hard bodied insects	grasshoppers and crickets; ORTHOPTERA 32
	With small, compound eyes; legs not modified for jumping; generally small, soft-bodied insects	34
32.	With relatively short, thick antennae, rarely extending past the thorax	immature grasshoppers
	With relatively long, thread-like antennae, often extending past the abdomen	33
33.	Body arched, or "hump backed"; yellowish to reddish brown color	Camel crickets
	Generally tan; abdomen bulbous; small eyes; "bald" head	Jerusalem crickets (Potato bugs)
34.	Tarsi 4 segmented; antennae short, bead-like	 termites; ISOPTERA







	Tarsi less than 4 segmented	35
35.	Tarsi 1 or 2 segmented; antennae short; body elongate	thrips; THYSANOPTERA
	Tarsi 2 or 3 segmented; antennae long	36
36.	Basal segment of front tarsi enlarged	 webspinners; EMBIOPTERA
	Antennae long and threadlike; front of head somewhat swollen; front tarsi not enlarged	 booklice; PSOCOPTERA
37.	With only a single pair of membranous wings; hind wings reduced to a small pair of knobbed structures	 true flies; DIPTERA (click on this number to see if it is one of these common flies of California 38).
	With two pair of wings	45
38.	Larger than 1/4 in. long, heavy-bodied, dark-colored	39
	Less than 1/4 in. long, generally slender bodied and delicate	44
39.	Heavy bodied, black and bumblebee like, larger than 1/2 in long	40
	Smaller flies, 1/4-1/2 in. long, brown-colored	41
40.	Head with large protruding mouthparts	horse fly
	Head without obvious mouthparts	bot fly
41.	Head with large protruding mouthparts	42
	Head without obvious mouthparts	43
42.	Eyes generally multicolored, with heavy protruding mouthparts	deer flies
	Eyes evenly brown or black, mouthparts long and slender	stable flies
43.	Body smaller than 1/4 in. long, brown	house flies
	Body 1/4 in long or longer, black or metallic blue or green	blow flies




44.	Minute, less than 1/16 in. long, mouthparts broad, barely showing	no-see-ums
	Larger, about 1/4 in. long, with long slender protruding mouthparts	mosquitoes
45.	Wings partially or entirely covered with scales; coiled proboscis	46
	Wings not covered with scales; mouthparts other than coiled proboscis	47
46.	Antennae like long filaments with a hook or knob at the end	 butterflies, skippers; LEPIDOPTERA
	Antennae feather-like, or antennae like filaments but without a knob or hook	 moths; LEPIDOPTERA
47.	Wings long and narrow, fringed with hairs; minute insects	 thrips; THYSANOPTERA
	Wings not fringed with hairs	48
48.	Front wings small and knob-like, hindwings broad and fan-like	 twisted-wing parasites; STREPSIPTERA
	Front wings not reduced in size	49
49.	With sucking mouthparts (beak on lower, front part of head)	50
	With chewing mandibles	52
50.	Wings held roof-like over the body or outstretched; both pairs of wings uniformly textured throughout; head lengthened beneath the body so beak appears to come out from between front legs	 HOMOPTERA
	Wings overlap over the back of the body; front half of wings leathery in texture; beak begins at front part of head	 true bugs; HETEROPTERA (Click on this number to see if it is one of these common bugs in California 51)
51.	Body stout, broad "shoulders", prominent triangle shaped plate in the middle of the back; produces an unpleasant	stink bug

	odor	
	Mostly black body with irregular thin red lines on wings; red body under wings	Boxelder bug
	Dark colored bug with large red or orange patches on wings	Milkweed bug
	Variously colored bugs, with long legs and long antennae; usually slender bodies. End of abdomen may be flared beyond wing margins.	Assassin bug
52.	Front wings hard and of same texture as the body, meeting in a straight line down the back and hiding back pair of wings	53
	Front wings of a different texture than the body, not meeting in a straight line down the middle of the back	59
53.	Abdomen ending in a pair of prominent pincer-like appendages; front wings short, not covering entire body	 earwigs; DERMAPTERA
	Abdomen not ending in a pair of pincer-like appendages	 beetles; COLEOPTERA (click on this number to see if it is one of these common beetles in California 54)
54.	Long antennae, usually extending beyond the thorax and may even extend past the end of the abdomen	Long-horned beetle
	Very small beetles (3-4 mm; 1/8 inch), usually found indoors on windowsills or in wool carpets	Carpet beetle
	Medium to large beetles (1/4 inch or larger) that do not have exceptionally long antennae	55
55.	Usually uniformly brown or black beetles	56
	Body not uniformly brown or black	57
56.	Common in gardens, fast runners; in many cases there is a constriction between each of the three body parts (head, thorax, abdomen),	Ground beetles
	May perform a "headstand" when disturbed; can produce an odorous substance from the end of the abdomen; tip of the abdomen a bit pointed	Darkling beetles (Stink beetles)
57.	Body round or oval; wing covers usually red or orange colored with black spots	Ladybird beetles (ladybugs)
	Wing covers not red or orange with black spots	58
58.	Thorax with distinct points at the outside corners near where it joins the abdomen. Thorax may have a pair of "eye" spots	Click Beetle

	Medium to large beetle, oval shaped; tan body with white stripes	Ten-lined June Beetle
59.	Front wings more or less leathery or papery in texture, different from hindwings	60
	Both pairs of wings membranous, not thickened	64
60.	Body elongate and stick-like	walkingsticks; PHASMATODEA
	Body not stick-like	61
61.	Forelegs modified for grasping prey	 mantids; MANTODEA
	Forelegs not modified for grasping prey	62
62.	Body flattened from top to bottom	 cockroaches; BLATTODEA 28
	Body rounded, not flattened from top to bottom	 grasshoppers and crickets; ORTHOPTERA 63
63.	Antennae thick and relatively short, usually not extending past the thorax	grasshoppers
	Long antennae; two (males) or three (females) cerci extending from the back of the abdomen; usually tan, brown, or black	crickets
	Leaf-mimicking insects with slender legs and very long, thread-like antennae	katydids
64.	Antennae very short, bristle-like and hardly visible	65
	Antennae easily seen, of various shapes, but never bristle-like	67
65.	Hind pair of wings much smaller than front pair; abdomen ending in two or three long filaments	 mayflies; EPHEMEROPTERA
	Wings of more or less equal size; no long filaments at tip of abdomen	 damselflies and dragonflies; ODONATA 66

66.	Body relatively thick, wings held out to side at rest	dragonflies
	Body quite slender, wings often held together over body when at rest	damselflies
67.	Hind legs enlarged and fitted for jumping	some crickets; ORTHOPTERA
	Hind legs not enlarged, or only slightly larger than middle legs	68
68.	Veins of wings indistinct; antennae bead-like	 <a href="#">termite</a> s; <b>ISOPTERA</b>
	Veins of wings distinct; antennae of various shapes, but never bead-like	69
69.	Hind wings about half the size of front wings	 <a href="#">ants</a> , <a href="#">bees</a> , and <a href="#">wasps</a> ; <b>HYMENOPTERA</b> (click on this number to see if it is one of these common hymenopterans of California <a href="#">70</a> ).
	Hind wings about the same size as or only slightly smaller than front wings	77
70.	Antennae "elbowed" (bent halfway down the length)	winged ants (queens and males)
	Antennae not elbowed	71
71.	Wings appear very slender (because folded lengthwise) and usually held off of the body	72 (wasps)
	Wings usually held flat over back when at rest. Usually seen collecting pollen. Pollen may be visible on body, especially on legs.	74 (bees)
72.	Very long "stinger" at end of abdomen; usually a slender "waist"; very long antennae	'stump humper' wasps (Ichneumonid wasps)
	Stinger not particularly long	73
73.	Small, metallic blue or green wasp; usually rolls into a ball when disturbed; body may be covered with intricate sculpturing, giving it a jeweled appearance.	cuckoo wasps
	Medium sized wasp with distinctive yellow and black markings; yellow legs. Often comes to picnics, soda cans; builds papery nests.	Yellow jacket (paper wasp)
	Medium to large sized wasp; often blue-black with orange wings; antennae may be curled	Tarantula hawk
74.	Large, robust black bees; fuzzy; may have yellow markings	75

	Medium-sized or small bees, not all black	76	
75.	Abdomen very fuzzy; abdomen has some yellow, white or orange hairs; Carries pollen in compact balls on hind legs.		bumble bee
	Abdomen completely black, shiny; Never carries pollen in balls on legs		carpenter bee
76.	Orange and brown bee, with striped abdomen; Carries pollen in compact balls on hind legs		honey bee
	Small, metallic green bee; carries pollen loosely among hairs on hind legs and lower surface of abdomen		sweat bee
77.	Face long and beak-like		 scorpionflies; MECOPTERA
	Face not long and beak-like	78	
78.	Body and wings heavily clothed with hairs; wings folded		 caddisflies; TRICHOPTERA
	Body and wings not clothed with hairs	41	
79.	Cerci present at end of abdomen	80	
	Cerci absent at tip of abdomen	82	
80.	Legs short and stout; basal segment of front tarsi enlarged		 male webspinners; EMBIOPTERA
	Basal segment of front tarsi not enlarged	81	
81.	Cerci long and distinct; wings folded flat over back, with many veins; moderate to large insects		 stoneflies; PLECOPTERA
	Cerci short and indistinct; wing venation greatly reduced; minute insects		 zorapterans; ZORAPTERA
82.	Front of face somewhat swollen; tarsi 2 or 3 segmented		 booklice; PSOCOPTERA
	Tarsi 5 segmented, front of face not swollen	83	

83.	Hind wings broader at base than front wings, and this enlarged area of hindwing is folded fanwise at rest.; longitudinal veins not branched near wing margin.	 dobsonflies; MEGALOPTERA
	Hind wings not broader at base than front wings.	84
84.	Thorax highly elongated	 snakeflies; RAPHIDIOPTERA
	Thorax not highly elongated	 antlions and lacewings; NEUROPTERA