

## Key to Common Wasps and Bees of Northern California

- 1 First thoracic segment (prothorax) U-shaped in top view (Fig. 1).....2
- First thoracic segment straight or nearly rectangular in top view (Fig. 2).....5

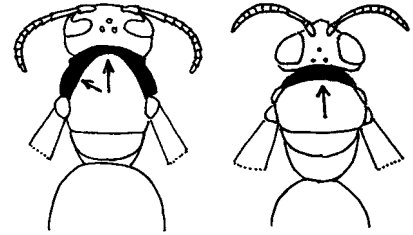


Fig. 1. *Vespula*

Fig. 2. *Bembix*

- 2 Base of abdomen slender and tubular, much longer than wide in top view (paper wasps) (Fig. 3).....*Mischocyttarus*
- Base of abdomen broad, first segment wider than long in top view.....3

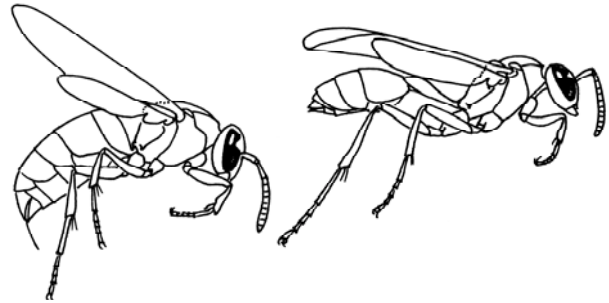


Fig. 3. *Vespula*

Fig. 4. *Mischocyttarus*

- 3 Thorax ovoid, posterior margin broadly rounded not angled before abdomen; first segment of abdomen about as tall as long (paper wasps) (Fig. 5).....*Polistes*



Fig. 5. *Polistes*

- Thorax box-like, posterior margin ending abruptly in nearly a right angle before abdomen; first segment of abdomen much taller than long in side view; heavy-bodied (yellowjackets) (as in Fig. 3).....4

- 4 Head with large distance separating eye from base of mandible; top of head with ocelli about half way between antennal sockets and back of head (Fig. 6, left side).....*Dolichovespula*

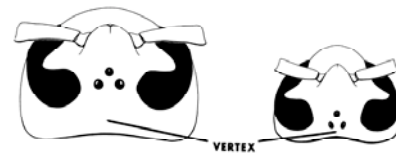


Fig. 6. *Dolichovespula*, *Vespula*

- Head with narrow distance separating eye from base of mandible or nearly touching base of mandible; top of head with ocelli much closer to back of head than antennal sockets (Fig. 6, right side).....*Vespula*
- 5 Body hairy, hairs appearing fuzzy or branched under high power; legs and/or abdomen often (in females at least) modified for carrying pollen – tibia broadened and/or densely hair (bees).....6

- Body hairless or with few scattered hairs, hairs simple without branching; legs slender, tibia not broadened and hairless (sand wasps, ground wasps).....
- 6 Hindleg with broad, flat, hairless plate used to carry pollen; body ½ in long or longer .....7
- Hindleg without broad, flat plate, densely hairy instead, pollen carried on leg or on belly.....8
- 7 Body brown and somewhat hairy, about ½ in. long (honeybees, Africanized bees); social bees, build honeycomb nests in cavities.....*Apis mellifera*
- Body black and densely hairy, hair mostly black, with yellow or reddish bands, ½-1 in long (bumblebees); social bees, nest in cavities in ground.....*Bombus*
- 8 Body large (¾-1 in. long) and shiny black with black hair or some yellow hair on top of thorax (carpenter bees), nest in wood.....*Xylocopa*
- Body smaller, about ½ in. long, body not shiny, various colors usually not black, mostly too hairy to see shininess (solitary bees).....9
- 9 Pollen carried on special patch on belly of abdomen (leaf cutter bees), usually gray-colored.....*Megachile*
- Pollen carried only on hindleg and/or carelessly across abdomen.....10
- 10 Pollen carried only on very densely hairy hindlegs, hair making the legs appear very broad; body very hairy (anthophorid bees) .....*Anthophora*
- Pollen carried on hindlegs and/or carelessly across abdomen, hair on legs not particularly long, hindlegs appearing somewhat broadened but not unusually so .....various solitary bees; andrenid and halictid bees
- 11 Abdomen without narrow, slender base, first segment, broader than long and appears broad next to thorax (as in Fig. 2.....12
- Abdomen with narrow, slender, tubular base (petiole).....13
- 12 Body colored dark or light gray and yellow, bullet-shaped, with bright yellow face and long yellow tongue; fast-flying and hovering, particularly in sandy areas; prey on flies).....*Bembix*
- Body variously colored, but without yellow markings, yellow face and long tongue; not fast flying, may be found in sandy areas.....various solitary ground wasps
- 13 Body black and yellow; abdomen with long and very slender petiole, petiole nearly as long as fat part of abdomen; prey on spiders (muddaubers).....*Sceliphron*

- Body not black and yellow, various other colors instead; abdomen with petiole shorter than fat part of abdomen.....14

14 Body entirely red, or less commonly yellow and black; without slender abdominal petiole; body less than 1/2 in. long; parasites of *Anthophora* bees (hairless, parasitic bees).....*Nomada*

- Body black and red, or metallic bluish; with slender abdominal petiole; body more than 1/2 in. long; solitary wasps.....15

15 Body black and red, red or gray and red; abdominal petiole much longer than fat part of abdomen; wings relatively clear; slender elongate wasps, 1-2 in long; prey on caterpillars.....*Ammophila*

- Body gun-metal blue to bright bluish green; abdominal petiole much shorter than fat part of abdomen; wings nearly black-colored; large heavier-bodied wasps 2-2 1/2 in. long.....16

16 Body covered with erect black hair, color dark with blue to purple tints; body length 3/4 -1 in.; prey on spiders, reuse abandoned muddauber nests.....*Chalybion*

- Body appears hairless, color bright blue to bluish green; body length 1-1 1/2 in.; prey on grasshoppers and katydids.....*Chlorion*

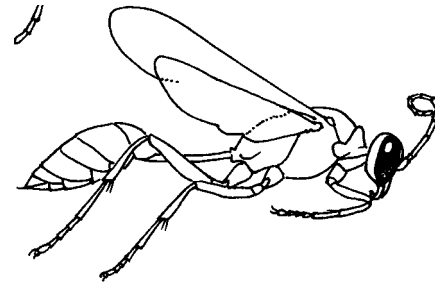


Fig. 7. *Sceliphron*

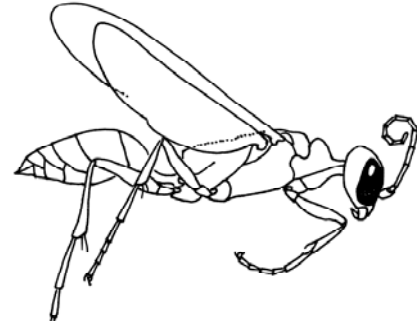


Fig. 8. *Chlorion*