

# Nevada Bee Identification Guide

Devon Picklum<sup>1</sup>, Cynthia Scholl<sup>2</sup>, and Kevin Burls<sup>2</sup>

<sup>1</sup> Ecology, Evolution, and Conservation Biology, University of Nevada, Reno, NV

<sup>2</sup> Nevada Bugs and Butterflies

In cooperation with Pollinator Partnership

Photographs of Nevada bees by Joseph S. Wilson



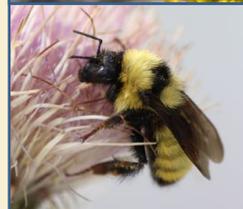
**Why bees are important:** Bees provide essential ecosystem services in natural and agricultural landscapes as pollinators of three-quarters of flowering plants. For people, this means every third bite of food is the result of pollination. Plants rely on pollinators to reproduce and set seed. Honey bees pollinate crops, but native bees also have a role in agriculture and they are essential for pollination in natural landscapes. There are 1,000 native species of ground-nesting, twig-nesting and parasitic bees found within Nevada. This guide gives information for identifying 10 major groups of bees commonly observed in Nevada including key characteristics, sizes (in mm), nesting habits, floral preferences, and distinctive behaviors.

## Bumble bees (*Bombus* spp.)

Family: Apidae - 10-23 mm

Robust, black body, extensively covered with bands of black, yellow, orange, or whitish hairs, long face, pollen basket on hind legs.

- 🏠 Social colonies nest underground, usually in abandoned rodent nests.
- 🔍 Bumble bees pollinate in cool, cloudy weather when most bees are at home.
- 🌸 Bumble bees can buzz-pollinate flowers, like tomatoes, that require vibration to release pollen.



## Honey bees (*Apis mellifera*)

Family: Apidae - 10-15 mm

Light to dark brown body with pale and dark hairs in bands on abdomen. Abdomen barrel-shaped. Heart-shaped head; pollen baskets on hind legs.

- 🏠 Large social colonies of 30,000 or more. Nest in man-made hives, tree hollows, or rock outcrops. Colonies swarm to locate new nests.
- 🔍 Honey bees are not native to the U.S., but were brought over by Europeans in the 17th century.



**Bee Identification:** Bees have three body segments: a **head**, **thorax**, and **abdomen**. The **head** has compound eyes, a pair of segmented antennae, and mouthparts including mandibles for biting, and the tongue for drinking nectar. The **thorax** bears the legs and four wings. The **abdomen** contains digestive organs and the sting in females.

## Carpenter bees (*Xylocopa* & *Ceratina* spp.)

Family: Apidae

*Xylocopa* - 13-30 mm

Shiny dark black to metallic blue-green body, sparse hairs on abdomen, robust with massive jaws. Pollen-carrying hairs on rear legs.

- 🏠 Solitary to communal, nests are burrowed into wood, often in roof eaves.

*Ceratina* - 3-15 mm

Shiny dark metallic blue-green body, sparsely haired, cylindrical abdomen. Pale yellow marks on face. Pollen-carrying hairs on hind legs.

- 🏠 Solitary or subsocial, nest in twigs and stems.



## Sweat bees (*Agapostemon*, *Augochlorella*, *Halictus* spp. & others)

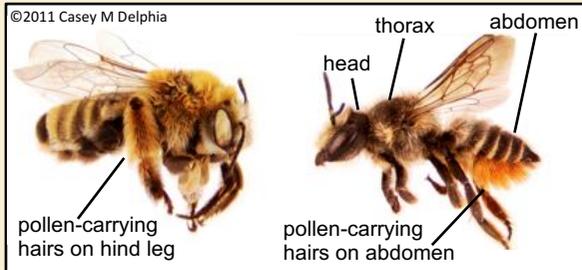
Family Halictidae - 3-12 mm

Two forms: 1) dull metallic blue or bright metallic green to copper or 2) black/brown with light bands of hair on the abdomen. Parasitic forms often have red abdomens. Slender body, pollen-carrying hairs on hind legs.

- 🏠 Solitary to social, nest in the ground.
- 🔍 Some are attracted to salt in your sweat.



©2011 Casey M Delphia



Female bees have special pollen-carrying hairs (scopa), usually on the legs, or in the case of leafcutters, under the abdomen. Honey bees and bumble bees carry pollen packed tightly into a ball on pollen baskets (corbiculae), concave areas on their hind legs.

## Mining bees (*Andrena* & *Perdita* spp.)

Family: Andrenidae - *Andrena* 7-18mm, *Perdita* 2-7 mm

Black or dull, slender metallic body often with brown or reddish hairs. Pollen-carrying hairs on hind legs and side of thorax.

- 🏠 Solitary or communal, nest in sand.
- 🔍 *Andrena* are abundant in the spring as they are one of the first bees to emerge each season.
- 🔍 *Perdita* is a diverse genus, bright yellow, black and whitish bees.



## Cuckoo bees (*Nomada*, *Triepeolus* & *Sphecodes* spp.)

Family: Apidae - 5-18 mm

Slender and wasp-like; relatively thick antennae, often with few hairs. Red, black, or yellow body, banded abdomens. *Triepeolus* is black and white with red legs.

- 🌸 Females feed on nectar but do not collect pollen.
- 🏠 Females are kleptoparasites; they lay their eggs in another bee's nest to steal the nests and food.



**A Bee or Not a Bee?** There are two kinds of insects that are often confused with bees: flies and wasps. Many flower-visiting flies (e.g. the Syrphidae) are bee and wasp mimics in color, form, and behavior. By mimicking bees and wasps in appearance, they gain protection from predators. So, how do you tell these pollinators apart?

**Fly Identification:** Flies have only one pair of wings, while bees have two pairs. Flies usually have short, stubby antennae with single hairs, or feathery antennae. They have piercing/sucking or sponging mouthparts. Many flies have huge eyes that meet at the top of their heads.

**Wasp Identification:** Wasps have two pairs of wings, chewing mouthparts, a sting in females, and long antennae. While bee hairs are branched (plumose), wasp hairs are simple and straight. Bees are also usually hairier and more robust than wasps. Many wasps have a distinctive constricted "wasp waist," between their abdomen and thorax. While most wasps are carnivorous predators or parasites, some feed on pollen and nectar.

## Squash bees (*Peponapis* & *Xenoglossa* spp.)

Family: Apidae - 10-18mm

Brown body covered in dense light hair on the thorax and in bands on abdomen. Coarse dense pollen-collecting hair on hind legs. May have light spot on face, males have long antennae.

Appear to have protruding "nose".

- 🏠 Solitary bees nest in the ground, often in or near pumpkin and squash fields.
- 🌸 Only collect pollen from squash and pumpkins

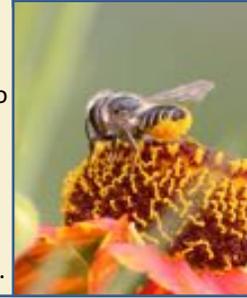


## Leafcutter bees (*Megachile* spp.)

Family: Megachilidae - 10-20 mm

Black body with light or dark hairs. Pollen-carrying hairs beneath abdomen. Some have rather pointy abdomens. Head is as broad as the thorax with large mouthparts used to cut leaves.

- 🏠 Females cut circular pieces from leaves to line their nests
- 🌸 Solitary, nest in beetle holes or wood nesting blocks, some in soil.



## Mason bees (*Osmia* spp.)

Family: Megachilidae - 5-20 mm

Two forms: 1) black body covered in pale hairs or 2) dull metallic green-blue and less hairy. Carry pollen on hairs under abdomen. Head as broad as thorax, robust body, large mandibles.

- 🔍 Collect mud to line their nests.
- 🏠 Solitary, but nest in aggregations in natural or man-made holes such as beetle holes, nesting blocks, stems, or soil.



## Long-horned bees (*Melissodes*, *Svastra* & *Eucera* spp.)

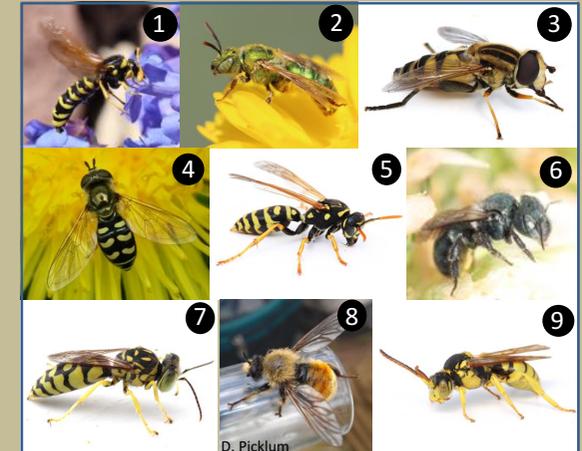
Family: Apidae - 7-20 mm

Robust and very hairy, dark body often with pale hair bands on abdomen. Dense pollen-carrying hairs on hind legs. Males have very long antennae.

- 🏠 Solitary to communal, nest in sandy soils.
- 🌸 Some species are especially attracted to asters, sunflowers, and mallows.



Now that you know how to tell the difference between bees, wasps and flies, try identifying the insects in the photos below. Answers are at the bottom.



1. Wasp 2. Sweat bee 3. Fly 4. Fly 5. Wasp 6. Mason bee 7. Wasp 8. Fly 9. Cuckoo Bee