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Department
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**Common Bee
Pollinators of
Oregon Crops**

Sarah Kincaid

Images by Thomas Shahan



Bees of Oregon

Approximately 500 species of bees live in Oregon. Many of these pollinate the diverse crops grown in our state. These species can be very different in their size, appearance, habitat, life cycle, flowers visited, and overall behavior.



How to use this guide

This guide is designed to help identify the most common groups of bees in Oregon crops. This guide identifies bees to the level of genus (a group of species that are closely related and usually exhibit similar characteristics) and in some cases to subgenus (a further subdivision of species within a genus). For each genus, a brief description is provided that includes information about size, placement of pollen-carrying hairs, crop preferences, and nesting behavior.

It's important to note that this guide primarily uses female characteristics to describe bee groups. In some species males look different than females. In general, males have slightly longer antennae, differ in size, and have additional yellow fur and/or yellow markings on their body.



♀ *Osmia* female



♂ *Osmia* male

Size

For each genus an icon is provided that shows the average size of its members, as compared to a honey bee. It also gives a range of sizes for members of each genus, in millimeters.

Honey Bee



4mm-8mm

Size Range

Pollen-Carrying Hairs

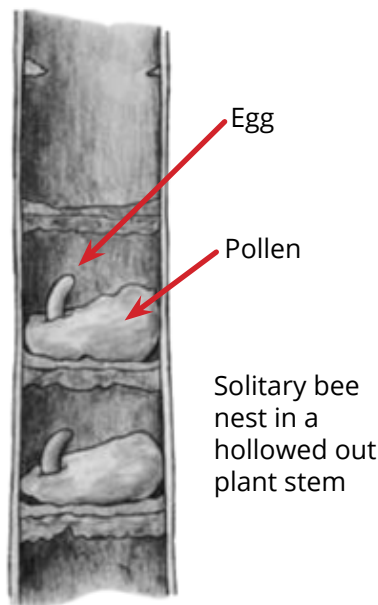
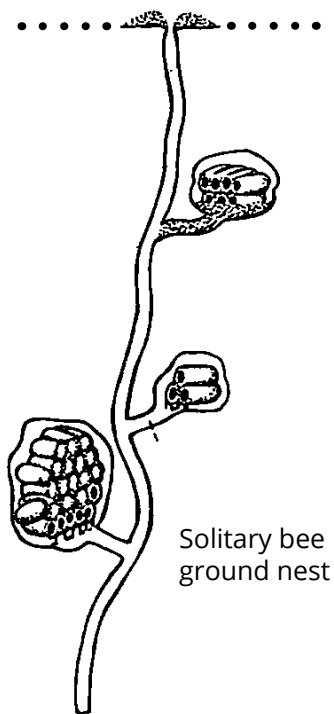
One of the many ways that species of bees differ is in the way they transport pollen. Almost all of them rely on specialized hairs to hold pollen during flight. For each genus in this guide an icon is provided with these hairs highlighted.



Mining bees carry pollen on their hind legs and on hairs between the abdomen and the thorax.

Nesting Behavior

Most native bees in Oregon are solitary, meaning only a single female builds the nest (or nests) and lays eggs. This is very different from social bees, like honey bees, which need many individuals to maintain the nest and care for the young. The behavior of some bees is neither strictly solitary or social.



*images borrowed from "The Biology and External Morphology of Bees"

Species: Apis mellifera
Common Name: Honey Bee



Honey bees are not native to North America. They were brought here by European settlers in the 1620s. Prized for honey production, they have large, perennial, colonies that can be easily transported and which can pollinate many different crops. For these reasons, they are the most widely used commercial pollinator in the world. The workers are all females.

Preferred Crops: Many

Nesting Behavior: Honey bees are highly social cavity nesters. Hives have on average 25,000 individuals made up of a reproductive queen, workers, and males (drones).



12mm-15mm

Honey Bees carry pollen in a corbicula, or pollen basket, a small basket of specialized hairs on their hind legs.

Genus: *Bombus*

Common Name: Bumble Bees



Some of the most important native pollinators of agricultural crops, bumble bees are large and hairy. Unlike honey bees, bumble bees perform well in greenhouses and can forage when the weather is too cold or wet. Commercial colonies are not currently available in Oregon because they use species not native to our state. However, they are used in other parts of the country.

Preferred Crops: Many, especially blueberry, cranberry, and red clover grown for seed.

Nesting Behavior: Bumble bees are social. Colonies are made up of a queen, workers, and males. There are both cavity and ground nesting species. Over twenty species live in Oregon.



11mm - 23mm



Like honey bees, bumble bees carry pollen in a corbicula, or pollen basket.

Common Bumble Bee Species of the Willamette Valley



Bombus vosnesenskii



Bombus appositus



Bombus nevadensis



Bombus melanopygus



Bombus californicus



Bombus griseocollis



Bombus mixtus



Bombus bifarius

Genus: *Halictus*

Common Name: Sweat Bees



Sweat Bees are some of the most common bees in Oregon croplands. They are broad generalists, visiting many different plant groups. Members of the genus *Halictus* are medium sized bees that vary from black to dark brown. They are distinguished from *Lasioglossum*, a similar genus, by the placement of their abdominal hairbands along the bottom edge of these segments. Four species are found in Oregon.



Preferred Crops: Many, especially clover, marigold, and zinnia grown for seed.

Nesting Behavior: *Halictus* are partially social and nest in tunnels in the ground.



9mm - 15mm



Sweat bees carry pollen on their hind legs and on hairs on the underside of the body.

Subgenus: Seladonia

Common Name: Small Metallic Sweat Bees



Seladonia consists of species within the genus *Halictus* that are small and metallic. Their color varies from metallic green to bronze. They are just as common as other sweat bees but often go unnoticed because they are tiny. Two species are frequently found in Oregon.

Preferred Crops: Many, especially carrot and cherry

Nesting Behavior: *Seladonia* are partially social and nest in tunnels in the ground.



4mm - 8mm



Small metallic sweat bees carry pollen on their hind legs and on hairs on the underside of the body.

Genus: *Lasioglossum*

Common Name: Sweat Bees



Similar to *Halictus* in size and color, species of *Lasioglossum* can be distinguished by the placement of abdominal hairbands on the top edge of abdominal segments. Probably the most common sweat bees in Oregon, *Lasioglossum* are also broad generalists. Approximately 15 species live in the state.



Preferred Crops: Many, especially cherry, cane berries, meadow foam, and cole crops.

Nesting Behavior: Predominantly solitary. *Lasioglossum* nest in small tunnels in the ground.



7mm - 12mm



Sweat bees carry pollen on their hind legs and on hairs on the underside of the body.

Genus: *Dialictus*

Common Name: Small Sweat Bees



Dialictus consists of species within the genus *Lasioglossom* that are small and metallic. Their color varies from metallic green to bronze to gold. Like *Seladonia*, they frequently go unnoticed because of their small size, despite being incredibly common. The number of species found in Oregon is unknown.

Preferred Crops: Many, especially cherry and carrot seed (Oregon is the number one producer of carrot seed in the world).

Nesting Behavior: Predominantly solitary. *Dialictus* nest in small tunnels in the ground.



4mm - 7mm



Small sweat bees carry pollen on their hind legs and on hairs on the underside of the body.

Genus: *Agapostemon*

Common Name: Metallic Sweat Bees



Members of the genus *Agapostemon* are a brilliant metallic green. Some species have dark abdomens, while others are entirely metallic green. Males often have yellow bands on the abdomen. Like most sweat bees, they are generalists and can be found in many crops. About five species are found in Oregon.

Preferred Crops: Many, especially carrot and flowers grown for seed.

Nesting Behavior: Predominantly solitary. *Agapostemon* nest in small tunnels in the ground.



7mm - 12mm

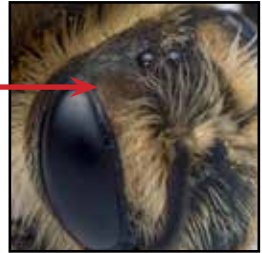
Metallic sweat bees carry pollen on their hind legs and on some hairs on the underside of the body.

Genus: *Andrena*

Common Name: Mining Bees



Some of the first bees to emerge in spring, members of the genus *Andrena* vary greatly in size and appearance. Females can be recognized by patches of velvety hairs between the eyes. Over 100 species are found in Oregon.



Preferred Crops: Apple, cherry, peach, and pear.

Nesting Behavior: Solitary. *Andrena* nest in small tunnels in the ground.



4mm - 17mm



Mining bees carry pollen on their hind legs and on hairs between the abdomen and the thorax.

Genus: *Megachile*

Common Name: Leafcutter Bees



Both *Megachile* and the genus *Osmia* belong to the family Megachilidae, meaning “large jaw,” referring to their large mandibles. *Megachile* are non-metallic and dark bodied, often with abdominal hair bands. They are called leafcutter bees because they cut small pieces of leaves and flowers to line their nest cells. One non-native species, *Megachile rotundata*, is managed commercially in Oregon for the pollination of alfalfa. There are approximately forty species in Oregon.

Preferred Crops: Alfalfa, onion, carrot, and sunflower.

Nesting Behavior: Solitary. *Megachile* nest in cracks and crevices of wood or rock, in beetle holes, in pithy stems, and occasionally in the ground.



6mm - 22mm



Leafcutter bees carry pollen on specialized hairs on the abdomen.

Genus: *Osmia*

Common Name: Mason Bees



Like leafcutter bees, *Osmia* have large jaws and big heads. They range in color from metallic blue to green, occasionally black. Their abdomens often have a rounded appearance. *Osmia* are called mason bees because they use mud to make their nest cells. Several species are managed for agricultural production. There are approximately 70 species in Oregon.

Preferred Crops: Apple, blueberry, cane berries, cherry, and strawberry.

Nesting Behavior: Solitary. *Osmia* nest in cracks and crevices of wood or rock, in beetles holes, in pithy stems, and occasionally in the ground.



6mm - 12mm



Mason bees carry pollen on specialized hairs on the abdomen.

Genus: *Ceratina*

Common Name: Small Carpenter Bees



Certina are small mostly hairless bees that vary in color from dark metallic blue to green. They emerge in the spring and stay active until fall.

Preferred Crops: Apple, cane berries, cherry, pear, and strawberry.

Nesting Behavior: Solitary. *Ceratina* nest in stems, and can frequently be found in plants with pithy stems, like blackberry.



4mm - 8mm

Small carpenter bees have rudimentary pollen-carrying hairs. They may transport pollen by swallowing it and regurgitating it back at the nest. This behavior has been observed in primitive bees.

Genus: *Melissodes*

Common Name: Long-horned Bees



Melissodes are called long-horned bees because males have unusually long antennae. They are large and stout bees that vary greatly in color from black to silver, and may or may not have abdominal banding. They typically do not emerge until summer. Approximately 25 species live in Oregon.



Preferred Crops: Flowers and herbs grown for seed, sunflowers, and other plants within the daisy family.

Nesting Behavior: Solitary. *Melissodes* nest in tunnels in the ground.



9mm- 15mm



Long-horned bees have large brush-like hairs on their back legs that they use to carry pollen.

Nest Parasites

Common Name: Cuckoo Bees



Cuckoo bees are frequently found at crop sites. These bees, which are often wasp-like in appearance, do not provision their nests like other bees. Instead, they lay their eggs in the nests of other bee species, stealing those precious resources from other species for their own offspring.

Additional Resources

The Xerces Society:

www.xerces.org/pollinator-conservation/native-bees/

Guide to Western Bumble Bees:

www.xerces.org/wp-content/uploads/2008/09/Western_BB_guide.pdf

The Pollinator Partnership:

www.pollinator.org

Ohio State University Bees and Pollination:

osu.campusguides.com/c.php?g=110118&p=714380



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Nest images borrowed from:

The Biology and External Morphology of Bees. 1969. W.P. Stephen, G.E. Bohart, and P.F. Torchio.
Oregon State University Agricultural Research
Station Publication.





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